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THE AMERICAN ARCHITECT AND BUILDING NEWS

VOL. XXIV. REGULAR EDITION NO. 670.

ARCHITECTURE

ENGINEERING

DECORATION

TICKNOR & COMPANY

BOSTON MASS.

CONSTRUCTION

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Proposed House, Worcester, Mass.
The Attack on Chantilly.
The Place Louis XV and the Statue of the King.

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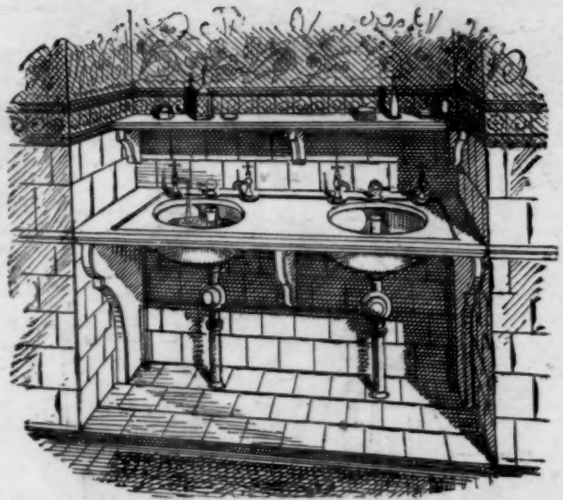

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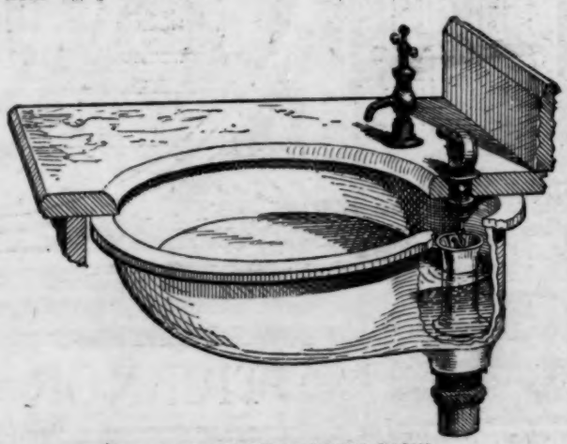

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THE New York *Times* has recently published an editorial article upon the price of iron beams, which shows the severity of the tax paid by American consumers of these all-important structural members, partly through tariff legislation, but much more through the combination of manufacturers, less forcibly than it deserves. The duty upon rolled-iron beams is now a specific one, of twenty-eight dollars a ton. This the *Times* calls equivalent to an *ad valorem* duty of eighty per cent. Instead of eighty, it is nearer one hundred and fifty per cent, as is easily shown. The latest quotations we have at hand for rolled-iron beams, "*fers à planchers*," in France and Belgium, date from the latter part of September, 1888. In these the French current price for such beams is given at thirteen francs per hundred kilogrammes. One hundred kilogrammes is two hundred and sixty-eight pounds, and at five and one-fifth francs to the dollar, which is about the present rate of exchange, the cost of French beams, in our weights and measures, is ninety-three hundredths of a cent per pound. In Belgium such beams are cheaper than in France, the quotation at the same date being one hundred and seventeen and one-half francs per metric ton, of two thousand six hundred and eighty pounds. This, reduced to American standards, is eighty-four hundredths of a cent per pound. We do not know whether the United States Custom House calls a ton two thousand or twenty-two hundred and forty pounds. If the former is the rule, the duty of twenty-eight dollars a ton amounts to one hundred and sixty-seven per cent on the original cost of Belgian beams; if the import be reckoned on the "long" ton, it is about one hundred and fifty per cent *ad valorem*, the average being nearly double what the *Times* calls it. It is understood, of course, that we have nothing to say as to the propriety or impropriety of imposing such a duty. That is a question of the development of native industry, with which we have nothing to do; but while the matter is under discussion it is important to have the facts correctly stated. The *Times* further mentions that, as we all know, the American rolling-mill combination has fixed the price of its beams at three and three-tenths cents per pound, or about four times the cost of similar beams in Belgium, and that, after paying duty, freight, insurance, brokerage and charges, the foreign beams can be delivered in this country at about six-sevenths the price of those rolled here. It seems to think, however, that they are rarely imported, which is a mistake, many tons of them being used in the seaport cities every year. They are easily distinguished, being, as a rule, less carefully rolled and smoothly finished than the best American beams, and may be found in many new buildings by those who are curious enough to look for them.

A GOOD illustration of the worthlessness of official inspection of buildings is to be found in the report of the inquest upon two workmen who were recently killed by the fall of the fifth floor of a building in New York, upon which they were at work. The first witness called was the deputy inspector in charge of the district, who testified that he went every other day to the building where the accident occurred, and that ten days previous to the accident everything was going on properly. The coroner seemed to think that the inspector ought to know something about the work on the day of the catastrophe, and questioned him, when it appeared that he had two hundred and ninety buildings to supervise, and could only give a hasty look, two or three times a week, at each one. Although it is obviously impossible for any man to see much of what is going on in two hundred and ninety buildings at once, the New York inspectors acquire a remarkable quickness in judging of what they do see. Another inspector, being called in the same case, testified unhesitatingly that in his opinion the fall was caused by piling too many bricks on the upper floor. The foreman doubted this, and ascribed the accident to the "jarring" caused by the hod-elevator; but by further evidence it appeared that the hod-elevator had been hired by contract, and the contract of lease expired that day, so that it seems altogether probable that the last moments of the lease were utilized to hoist as many bricks as possible to the upper floor, and that the inspector's surmise as to the result was the correct explanation of the accident.

A REMARKABLE, not to say suspicious, story of archæological discovery comes from Saïda, the ancient Sidon, in Phœnicia. According to the narrative, which *La Semaine des Constructeurs* quotes from the *Bosphore Egyptien*, a certain M. Durighello was recently digging in the ruins of Sidon, when he came suddenly upon a wall, buried several metres below the surface of the earth. There was nothing whatever on the surface to indicate that anything of interest lay beneath, but M. Durighello, pursuing his investigations, came upon a door in the wall, which had been blocked up with masonry, and, on being cleared, admitted him to a very strange and curious place. He soon discovered that he had found his way into a subterranean temple of Mithras, which had been purposely built underground by the priests after the prohibition of the Mithraic worship by Constantine, in order to avoid the observation of the Roman police. The concealment had been effectual, and after the priests, on deserting the temple, perhaps to go in search of worshippers, had built up the door, no one had entered it until M. Durighello's good fortune had brought him to it. On breaking through, he found himself in a long corridor, partly filled with earth which had fallen in from above, and lined with niches, in which were fourteen marble statues, representing warriors in menacing attitudes. Not deterred by these objects, the explorer passed through the corridor, and found himself in a "vast circular hall," covered with a polygonal dome, springing from twenty-four coupled columns. In front of each pair of columns was an altar, and by each altar a sort of marble bedstead. The altars were ornamented with the signs of the zodiac, sculptured in low relief, and on the walls, between the pairs of columns, were represented scenes very inappropriate to the stern military virtue enjoined upon the disciples of Mithras. Around the room were scattered candelabra, in marble and bronze, of wonderful beauty, and the floor was paved in mosaic of colored glass, inlaid with gold. In the middle stood a gigantic bull of marble, with horns covered with gold plates, and in front of the bull was a staircase, which led down, through a narrow opening, to seven consecutive subterranean apartments, each of which was a little smaller than the preceding one, while the walls of all were almost concealed by altars, groups of statues, and ornaments of marble, ivory, silver and gold. It is hardly necessary to add that a choice selection of these objects is now on exhibition in Paris, and that a wealthy amateur might possibly be able to secure specimens. So far as architects are concerned, while few of them could afford to buy such costly bric-à-brac, a good many would pay something for information as to how the priests of Mithras managed to construct a "vast polygonal dome" underground, without attracting the attention of the "Roman police" on the surface, or how the excavated material was disposed of without the knowledge of the same vigilant officers.

THE opening of the great Asiatic Railway has just been celebrated at Samarcand, in Bokhara, about three hundred miles from the Chinese frontier, and three hundred and forty from the boundary of British India. This is the present terminus, but an extension to Tashkend, two hundred miles

further north, has already been surveyed. Although constructed for military purposes, the railway will probably be utilized to develop the country commercially, and under the military administration some experiments have been made in irrigation, which show portions, at least, of the arid country through which the road passes to be capable of extraordinary fertility. Near some of the rivers, where systematic irrigation has been carried on, nine crops of clover are obtained annually, and cereals produce a hundredfold. Although the ties, as well as the rails, tools, rolling-stock and a part of the provisions consumed by the workmen, were brought from Russia, the construction was pushed with great economy, as well as rapidity, nearly four miles of track having often been laid in one day, while the total average cost of the line, including land damages, track, stations, rolling-stock and other equipment, and telegraph line, having been only about twenty-six thousand dollars a mile. One of the most serious items of expense was for the provision of a regular and sufficient water-supply in that desert region, for all the stations, repair shops, and workmen's settlements, but everything was done in the most thorough manner, all the stations, as well as the barracks for the military guard, which were necessarily attached to the stations, being built of stone. The method of laying the track was devised with great ingenuity, and carried out with military precision. A permanent construction train was arranged, conveying two crews, each consisting of four or five hundred native laborers, with a hundred and fifty soldiers to act as guards and overseers, and fitted with sleeping berths, kitchen and hospital cars, travelling blacksmith and machine shops, and provision-cars, and attended by a private train of five or six cars, which served as the dwelling of General Annenkoff and his suite. Every five or six miles a siding was built, and when the day's work began, the construction train was transferred to the siding, to make room for the track-laying train, which was pushed to the extreme front of the line. The track-laying train consisted usually of nine platform cars loaded with rails, eight loaded with ties, four with spikes, fish-plates and other accessories, and a dozen or so with material for stations and bridges, and provisions and water for the workmen; the whole being just sufficient for a mile and a quarter of track. These trains were loaded at supply-stations on the finished part of the line, and sent forward at regular intervals, and three of them were often required in a day. In order to unload them quickly, and with the least loss of time in handling and transferring materials, General Annenkoff, after some experience with the usual method, of taking the rails and ties from the sides of the cars, loading them on carts, or on the backs of camels, and transporting them to where they were wanted, equipped all the cars carrying ties and rails with runways on each side, fitted with rollers, and nearly meeting at the ends of the cars; so that the rails and sleepers, instead of being thrown overboard, and then picked up and carried where they were wanted, were simply shifted to the runways, and rolled rapidly forward to the front of the train, where they were immediately laid, or taken on trucks, if required, and carried to some point in advance.

THE work of preparing the road-bed for the track was carried out mostly by native workmen. With the true Russian tact in managing barbarians, General Annenkoff contrived to get very good service from the half-savage Tartars of the country at a cost of about ten cents a day per man. His first step was to establish confidence by paying the men their wages at the end of each day. As few of them had probably ever seen so large a sum as ten cents before, this proved very attractive, and he found no difficulty in keeping a force, amounting sometimes to thirty thousand men, contented and industrious. As with all savages, however, he found it necessary to allow the nomads to carry earth for the embankments in bags or rude buckets. Any endeavor to persuade them to use more efficient apparatus would have provoked a rebellion, and he was wise enough not to attempt it. It is said that the engineers of the Mexican Central Railroad, observing that their Indian workmen moved material for the embankments by carrying it in baskets on their heads, sent North for wheelbarrows, intending at once to lighten the labor and improve the efficiency of their men. The docile natives received the wheelbarrows gratefully, but insisted on using them as baskets, filling them with earth, hoisting them with great exertion on their heads, and carrying them to the place appointed for depositing their burden. The less amiable Tartars would have been likely to mount their camels and desert their work in a body on the appearance of so offensive and unprecedented an object as a wheelbarrow, and General Annenkoff was able to comfort himself with the low rate at which his labor was purchased for the lack of scientific economy in using it. The cheapness of labor enabled him to try an experiment, which is worth remembering by those who are obliged to carry out such work rapidly, in the establishment of a reserve force of men, whom he could send at a moment's notice wherever they might be wanted, to supplement the work of the regular crew. In carrying out an extensive piece of construction, both economy and rapidity depend greatly upon the certainty with which all parts of the work are kept along together. In ordinary cases, the uniform progress of operations is continually interfered with by sickness or desertion among the men in one crew or another, or by miscalculation as to the difficulty to be met with, or the time to be occupied, in some portion of the work, and one crew often cannot be restored to efficiency at the expense of the others without dislocating the whole system of operation. To keep a few men in readiness to take the places of absentees, or to strengthen a crew inadequate for its duty, would often be a wise economy, but the reluctance of employers to maintain men in idleness to provide against the possibility of their being needed is so great that hardly any one but a military engineer would have thought of it.

THE *Scientific American* mentions that some experiments have recently been made at Alessandria, in Italy, to test the effect of colored light upon the insane. It has long been known that a free exposure to sunlight or diffused daylight is very tranquillizing to the nerves, but the physicians at the Alessandria asylum have gone farther than this, and distinguish between the effects of different colors in the light. Rooms were selected in the asylum, having as many windows as possible, and the sashes were filled with glass of various colors, the walls and woodwork being painted to match the glass. A patient suffering from melancholia, who refused to eat, was placed in one of these rooms, with walls and windows of a bright red. After three hours' exposure to this influence, he became cheerful, and asked for food. This, by the way, is a more significant circumstance to a physician than it would be to a layman. Most of us would say that any one, sane or insane, locked up for three hours in a room of any color, would be ready for some food at the end of that period, and would show a certain cheerfulness at the prospect of getting it; but with the insane whose malady begins with melancholia, the refusal of food is the earliest and most common, as well as most dangerous symptom, and is generally persisted in until nourishment has to be administered by force, so that the removal of this fancy, and the restoration of a healthy and spontaneous desire for food, in such a patient after a no more heroic treatment than a few hours' exposure to a certain kind of light, is certainly a fact worth recording in the annals of medicine. As a further test, another melancholy patient, who always kept his hands over his mouth to shut out food and air, was placed in the red room, and soon began to improve, and the next day had so far forgotten the hallucination which condemned him to self-starvation that he ate with a hearty appetite. Another patient, a violent maniac, was placed in a blue room, and became quiet in an hour; while a fourth was completely cured after passing a day in a violet-colored room. It is a pity that the accounts of the experiments are so meagre, but we may hope that they will be continued, and facts accumulated, until some reasonably safe inferences can be drawn from them. Although the medical journals attribute the improvement of the patients rather to the novelty of the sensations produced by the colored rooms, which distracted their attention for the moment from their own fancies, it is by no means unreasonable to suppose that the color may have been directly connected with the result in each case. Apart from the soothing effect of light of any kind, we know that the color sense may be the medium for the production of strong impressions on the mind. In a person in whom this sense is developed, the sight of a beautifully colored object excites, not mere intellectual pleasure, but a covetous appetite, which is more than half physical, and pursues its object as selfishly and impatiently as the other instincts of the senses. In fact, the color-desire overpowers for the time all others, and its gratification yields such intense pleasure that one can perhaps understand the sort of nourishment which the diseased mind might obtain from it, and see how strong doses of one color or another might prove useful where the condition of the recipient mind was so disturbed as to be incapable of appreciating perfect harmony.

BUILDERS' HARDWARE.[1]—X.

DOOR-SPRINGS, CHECKS AND HANGERS.

Fig 116. Star Door-spring. Van Wagoner & Williams Co.

THE simplest form of door-spring is a straight spiral coil of wire attached to the door and to the jamb, and drawing the door shut by a direct pull.

Such springs, of course, are used only on common work, though occasionally a spiral spring is used for gates in store-counters and railings, the spring being quite fine and long, and attached to the outside of the gate so that when the gate is closed the spring lies flat against it and does not show. The plain spiral spring is also a feature of many of the so-called door-checks; but in the line of springs which simply draw the door to there are several forms which are more convenient to use. Figure 116 illustrates the "Star" spring, manufactured by the Van Wagoner & Williams Company. In application one end is screwed onto the door near the jamb, and the other onto the jamb itself, the spring being at an angle rather than strictly vertical, and inclined towards the latch of the door so that when the door opens the spring acts both by resistance to compression lengthwise and by the uncoiling effect of the wire. The spring can be tightened in the same manner as the spring butts previously described, by turning the upper spindle to which the spring is attached, the pin *A* holding the spindle in position. Figure 117 illustrates another form of door-spring not unlike the foregoing in principle, though in this the spring acts entirely by its resistance to a twisting strain. In the cut, the lower screw-plate and hubs are shown drawn slightly away from the spring spindle, so as to expose the ratchets which hold the spring at any desired tension.

Figure 118 is a very strong form of direct-acting spring, intended to be used on fire-engine-house doors. As shown by the cut, the spring would force the door open, which, of course, is the intention in an engine-house; but the same principle could be applied to springs which are to close a door.

Fig. 117. Reliance Door-spring. Chicago Spring-Butt Co.

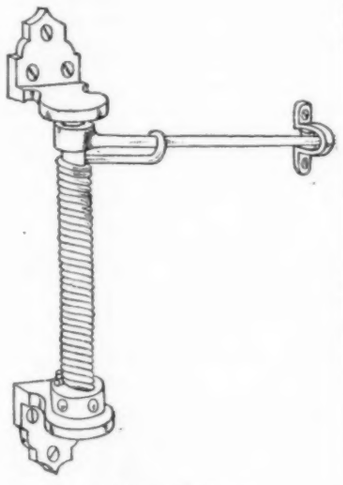

Fig. 118. Engine-house Spring. J. B. Shannon & Sons.

The spring is tightened at the bottom, and the upper lever-arm works through a staple and pulley-wheel on the door.

For light screen-doors a spring is sometimes used which acts by the twisting strain or torsion of a single steel rod, Figure 119. The two side pieces, *A A*, are screwed to the jamb. The upper flange is fastened to the door and has a catch fitting into the ratchets of a drum attached to the rod. As usually applied, the rod is not strictly vertical, but is at an angle with the door jamb, so that when the door is opened the rod is subjected to both a torsion and a bending strain. If the rod is well tempered, the bending strain, of course, gives it an added efficiency. Figure 120 is a form of torsion door-spring which is attached to the door, and is operated by means of a bent, hinged-lever fastened to the door-head. It is asserted that this spring has its greatest power just as the door is opened, and that the strain in the rod diminishes as the door is swung around.

The following table gives the average prices of the door-springs described:

TABLE OF DOOR-SPRINGS. — PRICES FOR A SINGLE SPRING.

Fig.	Name.	Laminated Spring.			Nickeled Spring.		
		Light.	Medium.	Heavy.	Light.	Medium.	Heavy.
116	Star door-spring	$ .15					
117	Reliance door-spring	1.20	$1.80	$2.80	$2.00	$2.80	$4.00
118	Engine-house door-spring, 24, 30 and 36-inch	3.00	4.00	5.50	4.75	6.00	7.75
119	Torry door-spring	.20		.40			
120	Peabody door-spring	.25	.25	.35			
121	Devore door-spring[1]						
122	Warner door-spring[1]						

[1] Not found in Boston market.

The principle involved in a reverse-acting spring butt, which has been explained in a previous chapter, can be applied to simple door-springs. Figure 121 shows a form which is made

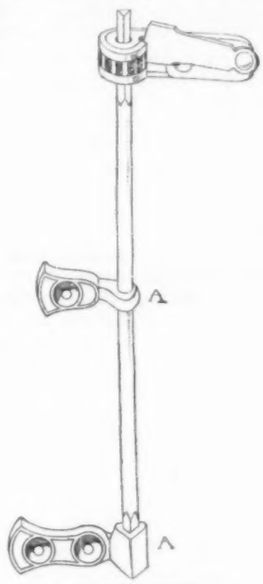

Fig. 119. Torry Door-spring. Van Wagoner & Williams Co.

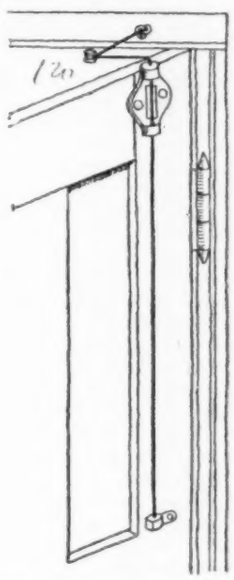

Fig. 120. Peabody Door-spring. A. W. Paine.

by the Freeport Hardware Manufacturing Company. This spring has a uniform tension, holds the door firmly when closed, and when the door is open about 120 degrees, the force of the spring is reversed and will hold the door open. Another advantage of this form is that the spring is easily unhooked and rehooked from the door, and also from the jamb with.

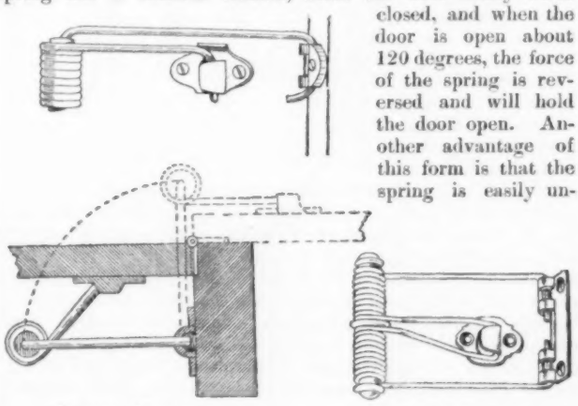

Fig. 121. Devore Door-spring. Freeport Hardware Manufg. Co.

Fig. 122. Warren Door-spring. Warren Manufg. Co.

[1] Continued from page 182, No. 669.

out removing the screws. The action of the spring will be understood from the illustration. Figure 122 shows a different form of spring, though on the same principle as the Devore. It has all the advantages of the one described and acts in precisely the same manner, though it is slightly larger. Both of these forms are exceedingly ingenious and efficient, and are sold a great deal in some parts of the country.

DOOR-CHECKS.

A door-check is understood to be anything which will hold the door either open or shut, or which will keep the door from slamming when closed. All the door-checks in the market are combined, directly or indirectly, with some form of door-spring. In some cases the spring is a part of the check, but more often the spring is a separate fixture, and is used as an auxiliary to the action of the check. One of the simplest forms of door-check is that shown by Figure 123. This consists of a strong band or spring of flexible steel which is attached by a proper holder to the head of the door-frame, so as to project about half an inch below the soffit. The door, in closing, catches on the shoulder at the end of the spring, forcing it up against the soffit of the door-frame, while the pressure of the spring on the head of the door keeps it from slamming, and in a measure also from opening too easily. The holder for the spring has slots *G*, instead of screw-holes, so that the spring can be moved up or down to any desired tension; while the upper slot *H* permits a further adjustment by moving the spring in or out. The retail price of this check is twenty-five cents each, japanned, or fifty cents, nickel-plated. For all ordinary practical purposes this door-check is as good a device as can be found, and is used a great deal on railroad cars, where there is constant liability to violent slamming. It will be noticed that the spring has a double power; first, by the friction of the door as it closes, and secondly, by the door coming in contact with the shoulder at the end of the spring. There is a special form of spring used to close this door consisting of a straight coil, with a hook on the jamb and a shoulder on the door.

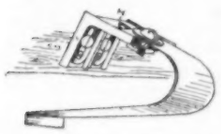

Fig. 123. Barlow Door-check. W. S. Barlow.

There are a few variations on the "Barlow" door-checks, but they all act on essentially the same principle, and this one will be sufficient for illustration. A very different kind of check is that which acts on the principle of a piston-pump, of which, perhaps, the best known is the "Norton" door-check. This article has been on the market a long time, and is used very extensively in some parts of the country. Figure 124 will give an idea of how it appears when set. The check consists simply of a plunger or piston working in a cylinder. Between the piston and the cylinder head is coiled a strong spiral spring, and the piston, as well as the cylinder, is pierced with a small hole to permit the air to escape. The cylinder is attached to the head of the door-frame, and is hinged at *A*. The piston-rod is connected by a hinged-joint with a lever *D* hinged to the frame, and a lever *G* attached to the door. When the door is opened, the piston is drawn out, the internal spring compressed, and the air enters through the holes in the piston and the cylinder head, filling the space beyond the piston. When the door is released, the spring tends to close it, the air behind the piston acting as a cushion prevents the door from closing too quickly or from slamming. The orifice in the cylinder can be made larger or smaller, thus regulating the speed at which the door shall close. The spring is made sufficiently strong to both close and latch the door after the air has escaped from the cylinder.

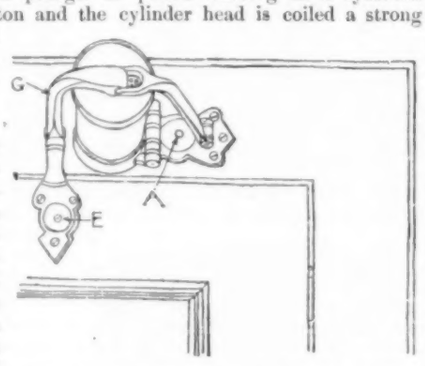

Fig. 124. Norton Door-check. A. J. Wilkinson & Co.

It will be seen that this door-check permits the door to be opened only about 120 degrees. This is usually more than enough for any doors requiring the use of a check, but a stop is always needed, otherwise the arm *G* may be broken.

A form of "Norton" door-check is also made to close the door from the outside. The action is exactly the same, except that the arm *G* is bent up and attached to the soffit, while the cylinder and *D* are attached to the door.

The "Norton" door-check is usually sold nickel-plated. The prices are as follows:

For screen-doors and doors not exceeding 2 feet 8 inches by 1½ inches	$4.00
Doors not exceeding 2 feet 8 inches by 2 inches	5.00
Doors not exceeding 3 feet by 2½ inches	6.00
Doors not exceeding 4 feet by 3 inches	8.00

A form of door-check, which has met with a great deal of approval, is the "Eclipse," manufactured by Sargent & Company. Figure 125 shows this check in position. It consists of piston secured to the head of the door-frame and working in a cylinder attached to the top of the door. The piston-rod is kept from lateral motion by a set-screw at one side of the foot, and a spring on the other, as shown by the figure, so that it can be accurately adjusted to meet the cylinder. When the door is opened, the cylinder is drawn entirely away from the piston, while the compression of the air in the cylinder when the door closes, prevents any slamming. The air escapes through openings in the end of the cylinder, so arranged as to be easily regulated. The piston in both the "Norton" and the "Eclipse" door-check have leather washers.

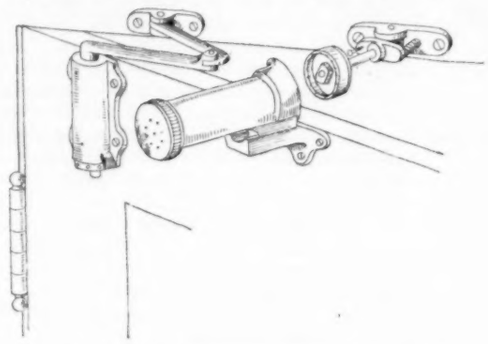

Fig. 125. Eclipse Door-check and Spring. Sargent & Co.

The "Eclipse" door-check can be used with any suitable form of spring butt, though the door-spring, shown by Figure 125, is especially made for this purpose by Sargent & Company. It consists of a strong spiral spring, cased in a cylinder and connected with the door-frame by a hinged bent lever.

The "Eclipse" checks and springs are finished in either Tuscan bronzed, bronze-plated or nickel-plated. The prices are as follows:

Door-checks.	Ordinary.	Heavy.	Very heavy.
Bronzed.	$2.10	$2 76	$4.00
Bronze.	2.40	3.30	4.60
Nickel.	4.20	5.00	6.30

Door-springs.	Ordinary.	Heavy inside.	Heavy outside.	Very heavy.
Bronzed.	$ .90	$1.25	$1.80	$2.52
Bronze.	1.10	1.50	2.10	3.00
Nickel.	3.00	3.36	4.00	5.00

The "Eclipse" check is applied to the outside of a door, if desired, a different form of holder securing the cylinder to the soffit of the door-opening, while the piston is fastened to the door.

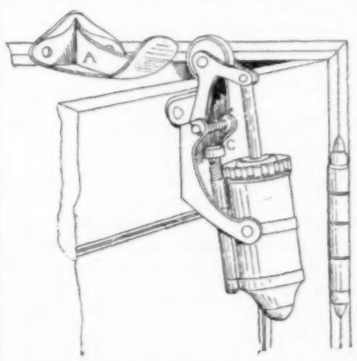

Fig. 126. House's Liquid Door-check. Nimick & Brittan.

It has been claimed that after being used for a certain time, the bearings in both the "Norton" and the "Sargent" door-check will wear loose, so that the air will escape too freely from the cylinders to form a reliable cushion; and several attempts have accordingly been made to produce a door-check in which the action should be regulated by the flow of some liquid, which would permit of metal instead of leather washers. Figure 126 illustrates one device on this principle. It consists

of a piston and cylinder attached to the door. The cylinder is pivoted so as to admit of a slight rocking motion, and the piston is hinged to a bent-arm, also pivoted just above *C*, and provided with a spring which serves to keep the piston drawn out. The cylinder is filled with oil, which flows back and forth through a small tube at the back, the rate of flow being regulated by a screw at *C*. When the door closes, the shoulder *A* on the door-head strikes against the bent arm and forces the piston down, the oil preventing any sudden slamming, while the rate of the flow through the tube below *C* determines the rate at which the door will close. This fixture retails at about $1 per set.

Such a form of check necessitates a spring-hinge, in order that the door shall be self-closing. Figure 127 illustrates a form of door-check manufactured by the same parties, which has a coiled spring inside the cylinder acting by means of the

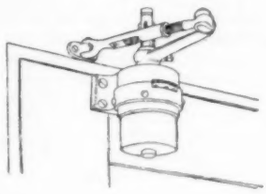

Fig. 127. House's Automatic Door-check. Nimick & Brittan.

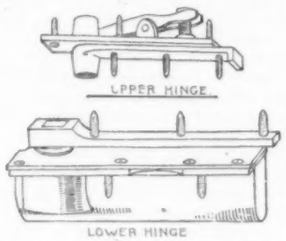

Fig. 128. Bardsley's Checking Spring-hinge. J. Bardsley.

hinged bent lever on the door-head. The interior of the cylinder is filled with oil, which checks the action of the door by flowing from one compartment to the other of the cylinder. The retail price is from $3.30 to $4.50 each, according to the finish.

Figure 128 is another form of combined door-check and spring, which is intended especially for double-acting doors, though it can be used for any door. No regular hinges are required with this fixture. The top of the door is held by a

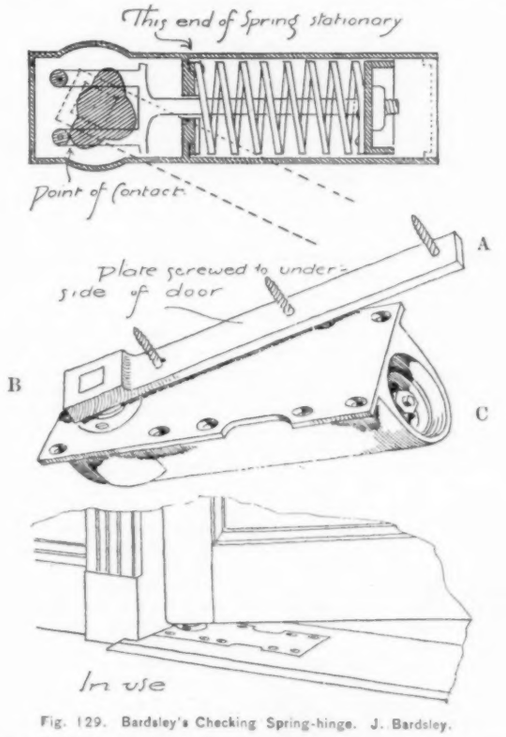

Fig. 129. Bardsley's Checking Spring-hinge. J. Bardsley.

species of pivot, fitting into a socket mortised into the top of the door, while the door-check answers for the lower hinge. The lever *A* is mortised into the bottom of the door, acting as a crank to turn the post *B*. The checking apparatus is encased in a box *C*, which is sunk into the door-sill and covered with a brass plate. Figure 129 shows a section of the box, which will illustrate more clearly its arrangement. The post *B*, when turned either way, moves a piston which travels in a cylinder completely filled with oil, in which is also a very heavy coiled spring whose action tends to close the door, while the oil prevents any sudden movement. The oil flows back and forth through a narrow aperture, the size of which can be regulated by a screw extending up through the covering of the box.

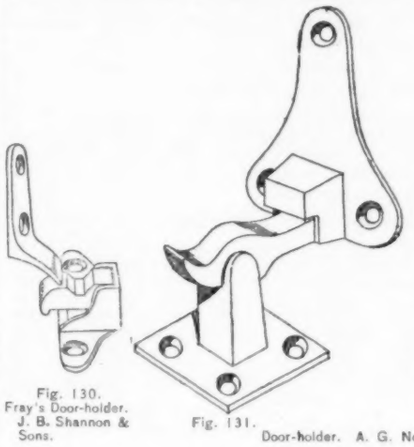

Fig. 130. Fray's Door-holder. J. B. Shannon & Sons.

Fig. 131. Door-holder. A. G. Newman.

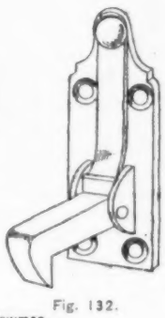

Fig. 132.

This check is listed at $17 per door complete for a door of ordinary size.

Besides the door-checks which are automatic in their action, there are a number of devices for holding the door open or in any one position. Some of them are self-locking, but are arranged so that the door can be easily drawn to by slight pressure. Figures 130 and 131 are two varieties of this style of door-check. Another kind is made to absolutely hold the door fast when it is opened, so that in order to close the door the check must be released by hand: Figure 132 shows one of the many varieties of this form. It is varied by having a lever attached to the catch by which it can be more easily raised, and also by the catch being placed so as to act sidewise instead of vertically. Figure 133 is a form of catch which is intended to be attached to the jamb and to work over the top of the door, nearly all the other forms being attached to the door and working on a striker which is screwed to the floor. Figure

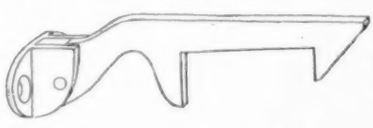

Fig. 133. Top Door-catch. P. & F. Corbin.

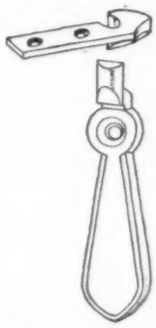

Fig. 134. Drop Door-check. A. G. Newman.

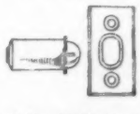

Fig. 135. Fray's Door-catch. J. B. Shannon & Sons.

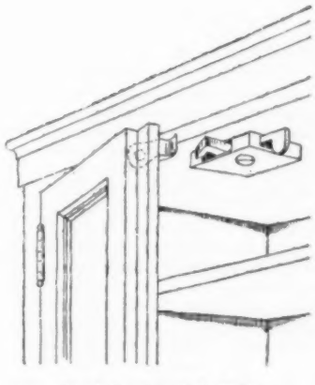

Fig. 136. Ross Inside Catch. Stoddard Lock & Manufg. Co.

134 is a self-locking form of door-check which is screwed to the door, catching onto a hook projecting from the wall. Figure 135 is a form of door-catch which is used for show-cases and closets, acting by means of a spring coiled inside the cylinder. Figure 136 is a spring-catch used only for light work or for cupboards.

[To be continued.]

ILLUSTRATIONS

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

HOUSE OF HENRY C. JACKSON, ESQ., BOSTON, MASS. MESSRS. ALLEN & KENWAY, ARCHITECTS, BOSTON, MASS.

[Gelatine Print issued only with Gelatine and Imperial editions.]

THE ATTACK ON CHANTILLY.

THE little equestrian statue at the right of this engraving, which is reproduced from "*Les Tableaux historiques de la Revolution française*," is the only trace it has been possible to find of the statue of the Constable de Montmorency, and this does not correspond with the printed descriptions.

THE PLACE LOUIS XV AND THE STATUE OF THE KING.

THIS engraving, which is drawn from the same source as the one above, is published in connection with the article on "Equestrian Monuments," elsewhere in this issue.

FURNITURE FOR THE CLUB-HOUSE OF THE NEW YORK CLUB, NEW YORK, N. Y. MR. R. H. ROBERTSON, ARCHITECT, NEW YORK, N. Y.

DESIGN FOR A SUBURBAN HOUSE BY MR. T. M. KELLOGG, BOSTON, MASS.

TWO TOMBS. MR. A. CUDELL, ARCHITECT, CHICAGO, ILL.

HOUSE FOR P. T. BARNUM, ESQ., BRIDGEPORT, CONN. MESSRS. LONGSTAFF & HURD, ARCHITECTS, BRIDGEPORT, CONN.

PROPOSED HOUSE, WORCESTER, MASS. MESSRS. BARKER & NOURSE, ARCHITECTS, WORCESTER, MASS.

ANCIENT AND MODERN LIGHT-HOUSES.[1]—XXIV.

LIGHT-HOUSE ADMINISTRATION (CONCLUDED).—THE UNITED STATES.

PRIOR to 1852 the Light-House Service of the United States was in the most inefficient condition; its shortcomings became so glaring that in 1851 Congress passed an act authorizing the Secretary of the Treasury to appoint a Board consisting of two officers of the navy of high rank, two officers of the engineers of the army, an officer of high scientific attainments, and a junior officer of the navy to act as secretary, whose duty should be to inquire into the condition of the light-house establishment of the United States and to make a detailed report to guide future legislation on the subject. With characteristic economy a further proviso was added to the act, providing that none of the above officers should receive any additional compensation for their services.

In obedience to the above act, the Hon. Thomas Corwin, then Secretary of the Treasury, appointed the following officers to form the above Board: Commodore William B. Shubrick, U. S. N.; Commander S. F. Dupont, U. S. N.; Brevet Brig.-Gen'l Jos. G. Totten, U. S. Corps of Engineers; Lieut.-Col. James Kearney, U. S. Top. Engineers; Prof. A. D. Bache, LL.D., Supt. Coast Survey; Lieut. Thornton A. Jenkins, U. S. N., Secretary. It would have been difficult to have selected a Board of more ability or probity. They entered on their duties with a patience and zeal which the importance of the subject required, and found that the existing system demanded a thorough purification and reorganization; that it was inefficient and wasteful; that the light-houses were neither properly built, located, nor distributed in accordance with the needs of commerce; that there was no efficient system of inspection and superintendence; that changes were constantly taking place in the aids to navigation without any official notice being given to the public; that the light-keepers in many cases were not competent, and they were never instructed in reference to their duties nor examined as to their ability to perform them, and, in short, that there was no proper system in the management of the light-house establishment of the United States.

This Board made a detailed report and recommendations to Congress and in consequence the following act was passed and is still in force: "The President shall appoint two officers of the navy of high rank, two officers of the Corps of Engineers of the army, and two civilians of high scientific attainment, whose services may be at the disposal of the President, together with an officer of the navy and an officer of the engineers of the army, as secretaries, who shall constitute the Light-House Board. The Secretary of the Treasury shall be *ex-officio* president of the Light-House Board." *Act approved 31 August*, 1852.

Further acts provided that the Board should elect one of its members as chairman, who should preside at its meetings in the absence of the president; that the Board should meet on the first Mondays in March, June, September and December, and at such other times as the Secretary of the Treasury should require; that it should be attached to the office of the Secretary of the Treasury, and under his superintendence should discharge all administrative duties relating to the construction, illumination, inspection and superintendence of light-houses, light-vessels, beacons, buoys and sea-marks and their appendages, embracing the security of existing works, procuring illuminating and other apparatus, supplies and materials for building and for rebuilding when necessary and keeping in repair the light-houses, light-vessels, beacons and buoys of the United States; should furnish to the Secretary of the Treasury estimates of the expense which the several branches of the light-house service may require, and such other information as may be required to be laid before Congress at the commencement of each session; should make such regulations as they deem proper for securing an efficient, uniform and economical administration of the Light-House Establishment, and should arrange the Atlantic, Gulf, Pacific and Lake Coasts of the United States into light-house districts. An officer of the army or navy was required to be assigned to each district as light-house inspector, subject to the orders of the Board.

The President of the United States was required to cause to be detailed from the Engineer Corps of the army such officers as may be necessary to superintend the construction and renovation of light-houses. And all plans, drawings, specifications and estimates of cost of all illuminating and other apparatus and of the construction and repair of towers, buildings, etc., were to be prepared by the engineer secretary of the Board, or by such officer of engineers of the army as may be detailed for that service.

In conformity to the act of 1852, the President appointed, on October 9, 1852, the following gentlemen to form the first Light-House Board: William B. Shubrick, Commodore, U. S. N.; Samuel F. Dupont, Commander, U. S. N.; Joseph G. Totten, Colonel, Chief of Engineers, Brevet Brigadier-General, U. S. A.; James Kearney, Lieutenant-Colonel, Corps of Topographical Engineers, U. S. A.; Prof. Alexander D. Bache, LL.D., Superintendent U. S. Coast Survey; Prof. Joseph Henry, LL.D., Secretary Smithsonian Institution; Thornton A. Jenkins, Lieutenant, U. S. N., Naval Secretary; Edmund L. F. Hardcastle, Lieutenant, Corps of Topographical Engineers, Brevet Captain, U. S. A., Engineer Secretary. The Board elected Commodore Shubrick as its chairman.

The chairman and the two secretaries are the executive officers of the Board and are members of all standing committees. Under the direction of the chairman the naval secretary has charge of all matters pertaining to floating aids to navigation, to supplies, to nominations and salaries of light-keepers, to inspection of the returns and accounts of the inspectors and the appropriations, petitions, applications and correspondence connected therewith. The engineer secretary, under the direction of the chairman, has charge of all fixed aids to navigation, the preparation of plans, specifications and estimates relating to them, the purchase and repair of illuminating apparatus, the real estate of the Light-House Establishment, the manufacturing establishments of the Board at Staten Island and the general depot at that place, except that part of it relating to supplies, the nomination and salaries of employés of light-house engineers, the inspection of the returns and accounts of light-house engineers, and the appropriations, petitions, applications and correspondence in relation to the foregoing.

The United States is divided into sixteen light-house districts. The first to the sixth inclusive comprises the Atlantic Coast, the seventh and eighth the coast of Florida and the Gulf of Mexico, the ninth, tenth and eleventh the Great Lakes, the twelfth and thirteenth the Pacific Coast, and the fourteenth, fifteenth and sixteenth the Ohio, Mississippi, Missouri and Red Rivers.

To each district is assigned a naval officer as inspector, who has charge of all the floating aids to navigation, the supplies of the light-stations, the salaries of keepers, and the disbursement of funds relating to the above objects. The inspectors are required to inspect the lights at least once every three months, at which time they ascertain the condition of the station and report it to the Board. They also furnish to the engineer of the district notes of such repairs as may be needed.

Every district has also an engineer officer of the army as district engineer, though in some cases this officer may be in charge of two or three districts; his duty is to superintend the construction and renovation of the fixed aids to navigation; he visits the lights as occasion demands, furnishing the Board with a report of the condition and needs of the stations visited, and sending to the inspector a copy of his notes so far as they relate to the latter's duties.

Both the district inspectors and engineers submit to the Board monthly and annual reports of the work done under their charge.

When the Board receives petitions for the erection of new lights,

[1] Continued from page 114, No. 663.

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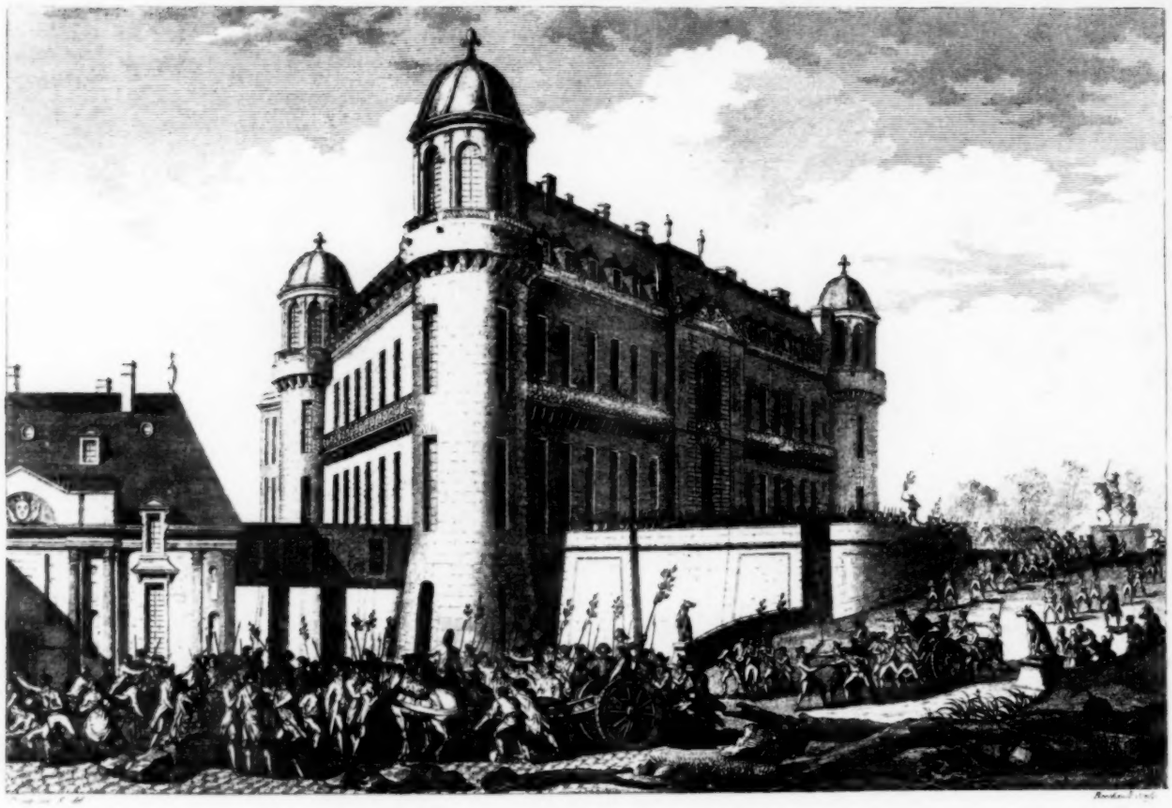

CANONS AMENÉS DE CHANTILLY A PARIS.

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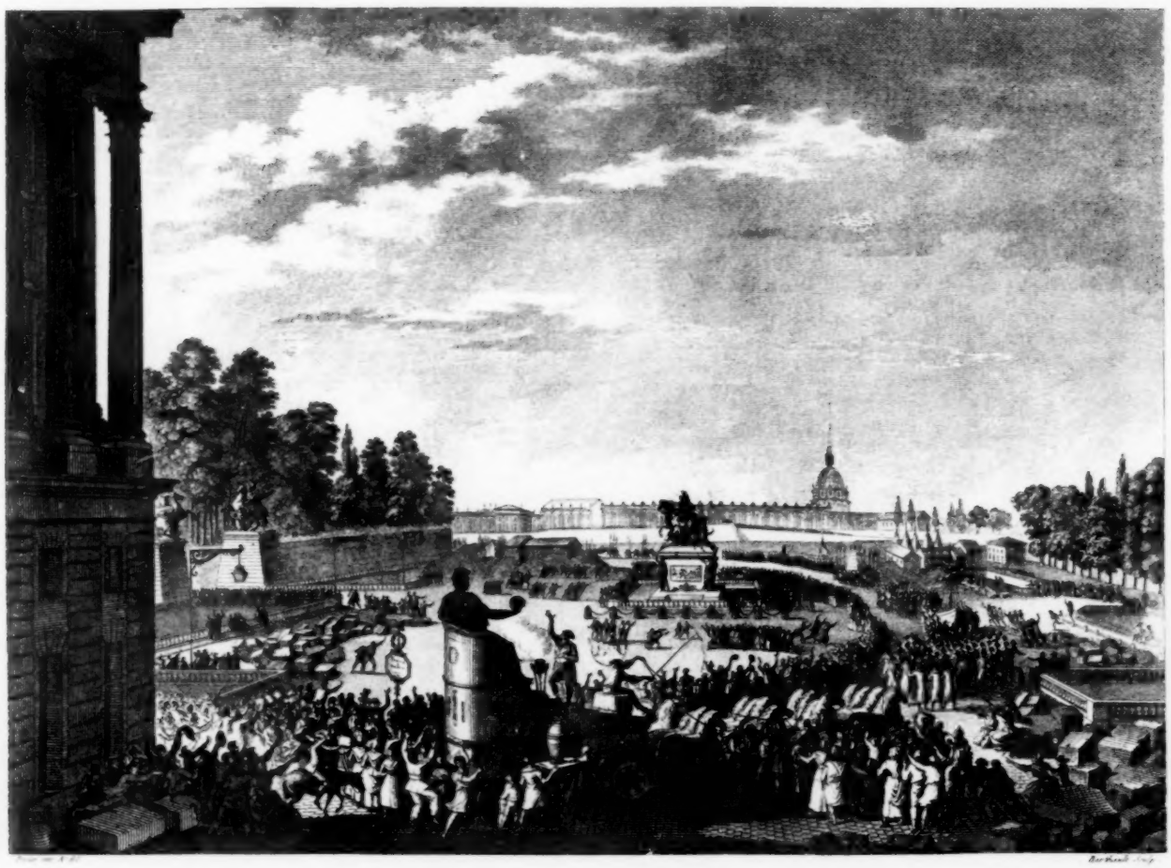

PREMIERE FÊTE DE LA LIBERTÉ A L'OCCASION DES SUISSES DE CHÂTEAU-VIEUX

le 15 Avril 1792

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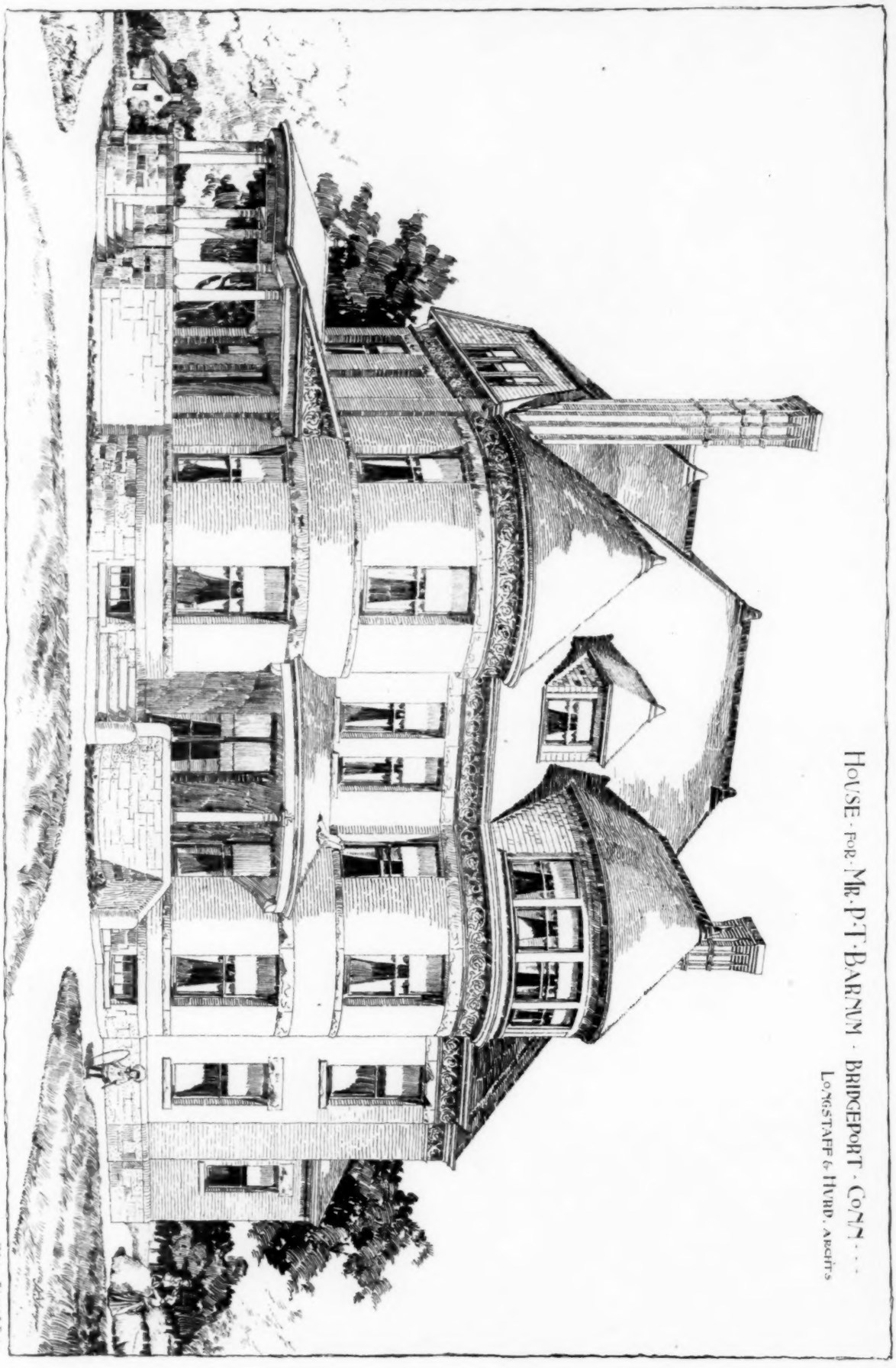

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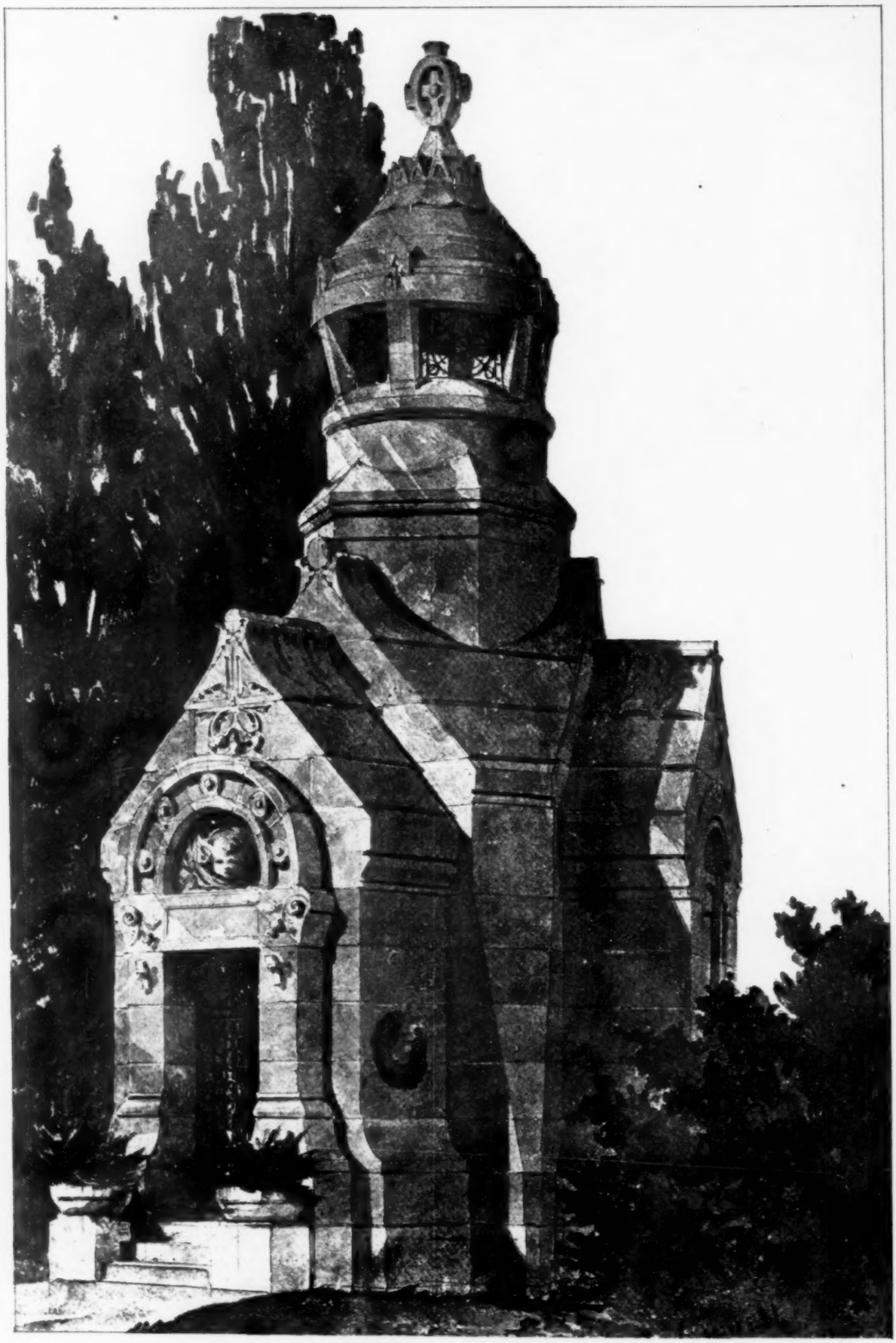

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· FOR · MR PERRY · H · SMITH ·

· CHICAGO · ILL ·

· · A · CUDELL · Architect ·

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American Architect and Building News, Oct. 27 1888 No. 670

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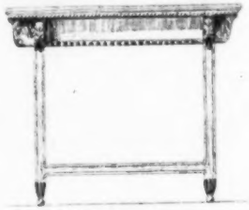
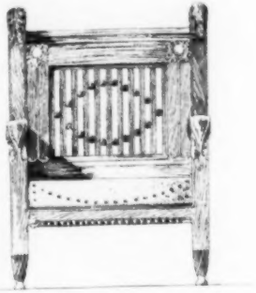


End.

Side of Double Writing Table - Morning Room

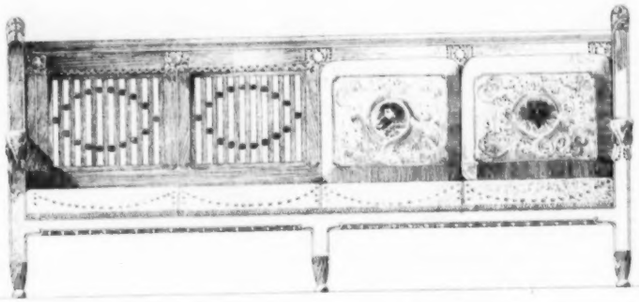
Wine Table

Plan

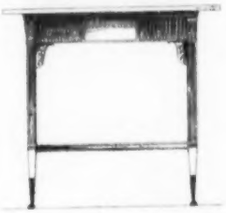


Armchair

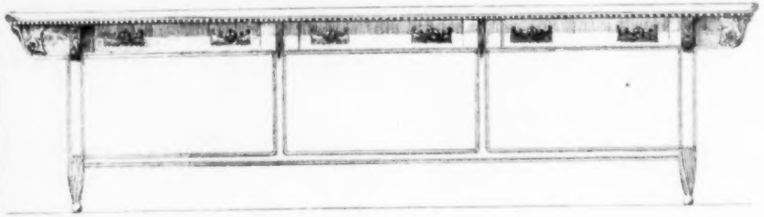
Side of chair and Sofa



Sofa - Morning Room



Cafe Table



Large Table Morning Room

Furniture Sketches for NEW YORK CLUB

R.H. Robertson
A.J. Manning, Archts Associated

Dining Room Table

Heliotype Printing Co. Boston.

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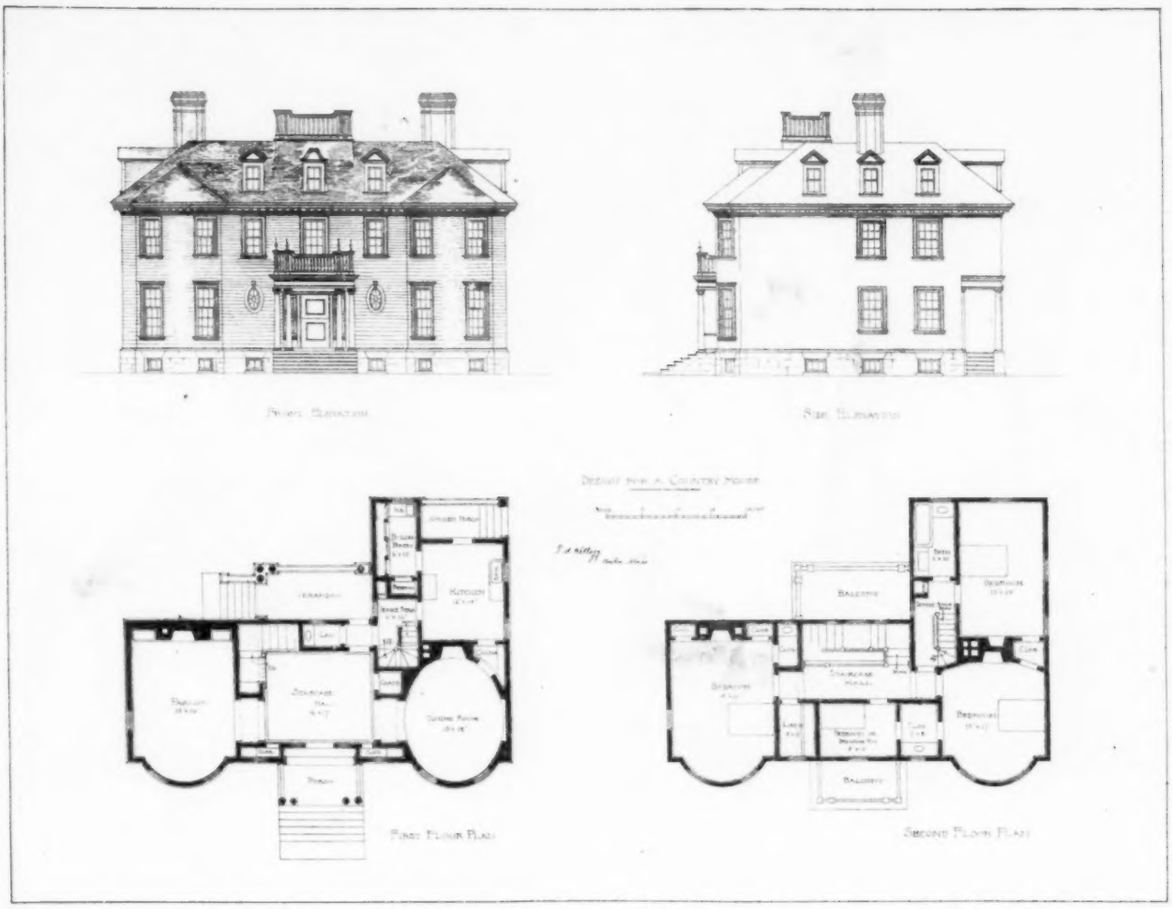

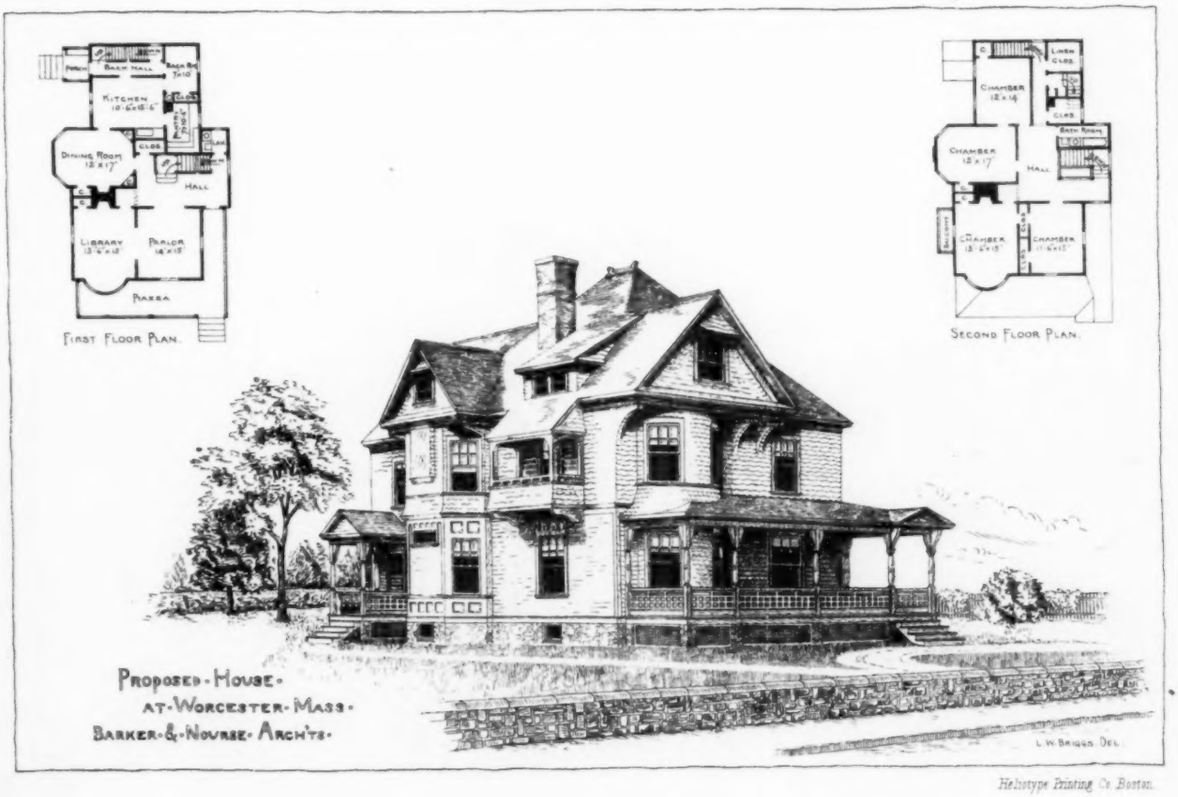

Heliotype Printing Co. Boston.

the matter is referred to both the district officers for their views as to the necessity for the light and its proper location; the district engineer also submits plans and estimates of cost of the proposed structure; the Board then decides as to what should be done, and makes a report to Congress through the Secretary of the Treasury.

If Congress makes an appropriation, the district engineer is charged with the erection of the light, which must be done by contract, if possible, after due advertisement.

When the light-house is completed, the district engineer informs the Board, the keepers are appointed and the light-house is placed in charge of the district inspector.

Prior to completion, the Board issues a notice to mariners, giving a short description of the light and the probable date on which it will first be lighted.

The annual expense of maintaining the light-house establishment is approximately as follows, and is divided under the following heads:

Supplies. — $340,000. This is mainly for mineral-oil, but also includes cleansing materials, books, boats and furniture for stations.

Repairs. — $300,000. This includes the repairs of light-stations, the building of pier head-lights and the purchase of illuminating apparatus to replace that already in use.

Salaries. — $585,000. This includes salaries of light-keepers, fuel, rations and rent of quarters where necessary.

Light-vessels. — $215,000. This includes all expenses of maintaining, supplying and repairing light-vessels.

Buoyage. — $325,000. This includes all expenses relating to buoys, spindles and day-beacons

Fog-signals. — $60,000. This includes all expenses relating to the establishment and repairs of fog-signals and buildings connected therewith.

Inspecting Lights. — $3,000. This is to pay for the travelling expenses of the Board and for rewards for information as to collisions.

Lighting of Rivers. — $225,000. This pays for the establishment, maintenance and supply for the river-lights previously mentioned.

Surveys. — $2,500. This is to pay for the preliminary examinations of sites and for plans, for which estimates are to be made to Congress.

Total. — $1,415,500.

The total sum is never exceeded and frequently is not spent, in which case the balance on hand at the end of the fiscal year is returned to the Treasury.

Every new light-house is the subject of a special appropriation which is available until the light-house is completed, any balance remaining is turned into the Treasury and is not available for any other purpose.

The number of lights increases from year to year to keep pace with the needs of commerce. The following table shows the aids to navigation maintained by the United States Light-House establishment on June 30, 1887.

The Board at present has its offices in the Treasury Department at Washington, and for a number of years past has complained of lack of room.

The Board has had to move four times since its organization in 1852, each time with damage and loss to its archives, and delay and inconvenience in the despatch of its business, which is yearly increasing in size and importance.

It has petitioned to Congress for an appropriation to erect, on one of the Government reservations at Washington, a suitable building in which its office, its records, its library, its museum and its laboratory can find a permanent home.

Congress, so far, has not seen fit to grant this appropriation.

The Board has depots for supplies and buoys in various districts, but the most important one is on Staten Island, N. Y., in the Third District. It is the general depot for the whole United States; all the oil is sent there, tested and distributed, and from it are furnished nearly all the supplies for the other districts. The inspector of the Third District has charge of the above, while the engineer has charge of a well-appointed lamp-shop, blacksmith and carpenter-shop, where lamps, lanterns and general metal-work are made and repaired, oil-cans and boxes for mineral-oil manufactured, illuminating apparatus set up and tested prior to shipment, buoys repaired, photometric tests made, and, in general, the multifarious work done which the light-house service requires.

A large tender, the "*Fern*," distributes the supplies from this depot to the Atlantic and Gulf coasts. She is soon to be replaced by a larger vessel, as the needs of the service are rapidly exceeding her carrying-capacity.

The supplies for the Pacific Coast, for the lakes and for the rivers are shipped by rail and distributed by the tenders of the districts.

Wherever it is possible light-keepers are furnished with commodious dwellings of five or six rooms; where vacancies occur they are filled by promotion from keepers in service of a lower grade, and the Collector of Customs of the district nominates for the ultimate vacancy; his nominee receives an appointment as acting-assistant keeper, and if he proves satisfactory after trial, he receives an appointment as assistant-keeper.

Aids.	Total number of aids.	Total unlighted aids.	Other buoys	Bell-buoys	Whistling-buoys	Day beacons	Fog-signals operated by clock-work	Fog-signals operated by steam or hot-air	Total lighted aids.	Lighted buoys	Light-ships in position	Reflectors	River-lights	Lens-lanterns	Range-lenses	Sixth-order lights	Fifth-order lights	Fourth-order lights	Three-and-a-half order lights	Third-order lights	Second-order lights	First-order lights	Electric lights
First district.	697	643	510	9	8	95	7	10	54	.....	.....	.....	.....	.....	.....	1	20	19	.....	5	7	12	.....
Second district.	633	561	471	8	8	58	8	7	72	8	.....	9	1	6	16	22	2	.....	1	3	.....	4	.....
Third district.	777	615	510	5	8	44	37	11	162	7	.....	52	6	33	17	33	1	1	5	1	6	1	.....
Fourth district.	253	181	100	4	4	2	8	3	72	3	.....	8	1	8	3	9	12	.....	.....	3	.....	5	.....
Fifth district.	1175	1077	1066	1	.....	2	54	1	98	2	.....	4	2	2	14	22	32	.....	.....	.....	.....	6	.....
Sixth district.	440	312	285	4	1	29	13	3	128	2	3	16	1	7	7	6	8	.....	4	.....	.....	5	.....
Seventh district.	250	230	200	2	1	.....	27	.....	20	.....	.....	.....	.....	1	.....	.....	6	.....	4	.....	.....	9	.....
Eighth district.	169	113	89	1	1	2	6	2	56	.....	2	2	1	13	12	12	14	.....	4	4	2	2	.....
Ninth district.	132	62	49	.....	.....	.....	3	10	70	.....	.....	.....	.....	2	17	13	26	3	8	1	.....	.....	.....
Tenth district.	243	173	167	.....	.....	.....	5	1	70	.....	.....	2	1	6	20	6	23	1	6	.....	.....	.....	.....
Eleventh district.	232	154	135	.....	1	3	1	14	78	.....	1	.....	.....	5	20	14	24	4	8	2	.....	.....	.....
Twelfth district.	143	121	57	.....	1	4	41	12	22	.....	.....	.....	.....	.....	2	.....	9	.....	3	1	.....	.....	.....
Thirteenth district.	267	222	172	3	1	2	38	6	45	.....	.....	.....	.....	30	.....	.....	.....	.....	1	5	.....	.....	.....
Fourteenth district.	441	.....	.....	.....	.....	.....	.....	.....	441	.....	.....	441	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fifteenth district.	371	.....	.....	.....	.....	.....	.....	.....	371	.....	.....	371	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sixteenth district.	295	.....	.....	.....	.....	.....	.....	.....	295	.....	.....	295	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Atlantic and Gulf coasts.	4374	3732	3211	49	34	281	123	34	642	4	23	30	.....	124	17	102	146	3	26	16	39	61	.....
Pacific coast.	410	343	229	1	10	79	6	18	67	.....	.....	.....	.....	.....	30	.....	16	.....	4	1	12	.....	.....
Lake coast.	607	389	351	1	.....	11	.....	25	218	.....	1	1	.....	.....	57	33	73	8	22	3	.....	.....	.....
Rivers.	1107	.....	.....	.....	.....	.....	.....	.....	1107	.....	.....	1107	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total for entire coast. 1887.	6488	4464	3791	51	44	381	140	77	2034	4	24	1302	17	78	124	189	235	11	52	20	51	1	.....
Total for entire coast. 1886.	6373	4378	3758	51	40	321	139	76	1995	2	23	1227	17	57	122	137	231	11	52	20	51	1	.....
Increase.	195	86	33	.....	4	60	1	1	39	2	1	75	.....	21	2	52	4	.....	.....	.....	.....	.....	.....

[1]*a* Including Blackwell's Island Light, not maintained by Light-house Board.
b Statue of Liberty, New York Harbor.

The salaries paid to light-keepers vary considerably, both on account of the importance of the lights and of the cost of living in different parts of the United States. The principal keepers at most of the first-order lights on the Pacific Coast receive $1,000 a year, while on the Atlantic Coast there is but one who receives so much, and that is at Minot's Ledge; he has three assistants at $550 each.

As a general rule the keeper of a first-order light receives from $700 to $800, of a second-order light from $600 to $700, and of the lower orders from $500 to $600. Assistant-keepers receive various rates of pay ranging from $400 to $550.

Captains of light-vessels receive from $750 to $1,000.

Keepers are required to be in uniform.

At some stations difficult of access rations are furnished in addition to the salary, and most stations also receive an allowance of coal.

Neat libraries, of about thirty books each, are left at isolated stations and changed from time to time. D. P. Heap.

[The End.]

EQUESTRIAN MONUMENTS.—IX.[1]

PERISHED MONUMENTS—THE FRENCH REVOLUTION.

Statue of Louis XV, by Bouchardon, in the Place Louis XV, Paris, France.[2]

While statue of Henry IV on the Pont Neuf was not the only one that had to undergo the peril of shipwreck before reaching its destined resting-place, for one of the many statues of Louis XIV endured the same fate.

In 1716, shortly after the death of Louis XIV, the Etats de Languedoc voted to erect at Montpellier a bronze equestrian statue in his memory. The work was entrusted to two Flemish sculptors, Mazeline and Utrels, who were settled at Paris. In due time these men succeeded in producing an equestrian statue which measured nearly sixteen feet in height, and which, consequently, was no trifling affair to transport to the south of France. However, the group was boxed in a strong framework, and by aid of capstans and rollers was dragged through the streets and loaded on a boat which was towed down the Seine to Rouen. There the statue was transhipped to a vessel and proceeded down the river and along the coast to Bordeaux, when just as the vessel was entering the mouth of the Garronne it was wrecked and the statue was in danger of being a total loss. It was at length recovered, placed on a boat and towed up the Garronne and through the Canal Royal, ponds and other water-courses—which, owing to the farsightedness of Sully, already formed a fairly perfect system of inland waterways—to Montpellier. Here it was received with great public rejoicings, and the promoters of the enterprise were in such haste that they could not wait for the completion of the pedestal, but hoisted the statue to the top of the unfinished base, and then and there unveiled it. The place where this monument was erected, on the Promenade du Pevrou, is one of the ideal situations in Europe for a monument, and its fame is known to travellers.

Another posthumous equestrian statue of Louix XIV, though it was ordered before the King's death, was erected in 1725 opposite the Palais des Etats, at Dijon by the Etats de Bourgogne. This was modelled by Le Hongre, sculptor to the king. In the Place Bellecourt, at Lyons, was destroyed in this same year an equestrian statue of Louis XIV by Desjardins of which as to its merits or its history little is known.

How it happens that any of the statues of royal personages escaped the iconoclasm of the unbridled revolutionists is not clear; but in all French revolutions the work of erasing the symbols of a previous condition of servitude has been done in a very unsystematic way, and though the traveller finds almost everywhere that the rabid subverser has been at work he finds the work fortunately scamped, and so it is that here and there on the Louvre still lingers the letter "N," and that in the inscriptions on public places the word "*Nationale*" has not replaced the word "*Imperiale*." Yet although some of the monuments of Louis XIV survive, others perished and amongst these the equestrian monument, the work of the sculptor Coysevox, which the Province of Brittany caused to be erected at Rennes in 1726, in the Place du Palais de Justice, eleven years after the death of the King—though the order for it had been given in 1685. All that remains of it are the bas-reliefs which decorated the pedestal and are now in the museum in that city.

Quite as much as his great-grandfather, Louis XIV, was his successor, Louis XV, fond of being immortalized in bronze and marble and so great was the number of statues that were erected to the glory of Louis "the Well-beloved," that their description and illustration furnished material enough for a very elaborate monograph. The most celebrated of these statues was the equestrian figure that was erected in 1763 on what is now the Place de la Concorde, a spot which is one of the important milestones in the world's history; for here the blood of some three thousand aristocrats was poured out under the falling knife of the guillotine, in expiation of the gross wrongs done by their caste upon the lower classes. But before the fateful invention of Dr. Guillotin could be set up in the Place Louis XV, Bouchardon's bronze equestrian statues of "the Well-beloved" must come down, and many of the men who helped to pull it down that August day may have had personal feelings of spite and revenge against the original which they could in this way mildly satisfy—the *Parc aux Cerfs* at Versailles was supplied from all grades of society and many a father, brother or lover had wrongs to avenge. What the Place de la Concorde now is with its seated statues of French Cities, its fountains and the obelisk of Luxor in the middle all travellers know; what the Place de la Revolution was the horrid page of history allows us to imagine; what the Place Louis XV was the illustrations—from engravings made about 1800—show. This latter name was once revived on the final overthrow of the first empire, but probably Louis XVIII did not think it wise to tempt another outbreak by erecting a statue to the fifteenth Louis.

The statue was commissioned directly after the Peace of Aix la Chapelle, which terminated the Austrian War of Succession, in 1648, when the people were not only grateful for peace but still felt much of their original enthusiasm for the young king whose vices and debaucheries were as yet somewhat veiled from public knowledge: his sobriquet had not yet been withdrawn from him. But in the fifteen years that elapsed before the statue was finished public feeling had probably undergone a great change, and though the ceremonial attending the unveiling of the statue was sumptuous, the enthusiasm of the spectators must have lacked the spice of personal admiration.

The work was entrusted to the architect Gabriel and the sculptor Bouchardon, who labored, it is said, with much perseverance upon the statue for more than twelve years, but if, as is likely, he was within the circles of court life it is probable that he proceeded about his task in a leisurely way. At his death in 1762, the monument was still unfinished, and had to be completed by the sculptor Pigalle to whom are to be credited the accessory figures of Strength, Wisdom, Justice, and Peace, which were placed about the pedestal and also, presumably, the bronze bas-reliefs which decorated its sides.

The monument was finally dedicated June 20, 1763, and consequently Louis in his classic garb, and his horse—which is said to have been really a fine piece of sculpture—had an existence of nearly thirty years before it was melted up and coined into pieces of two sous, on the theory, perhaps, that in this way the greatest number could profit by its downfall. The site was not allowed, however, to remain unadorned and a terra-cotta statue, by Lemot, of Liberty was soon set up where Louis's statue had been, and was at once christened "La Liberté de Boue."

Belonging to the same school, the same style, the same epoch was the statue of Louis XV, by Le Moyne, at Bordeaux, which was also destroyed at this time, and of which there remain only some bits of marble bas-reliefs preserved in the museum at Bordeaux. It is to be noted that all the statues of the Louis were designed as the central feature of a surrounding architectural treatment. It was the age of Le Nôtre and Mansart, and grandiose formalism pervaded the arts even as it did everyday life.

As Chantilly is not entirely beyond walking distance from Paris, it is probable that some portion of the same mobs that destroyed the monuments of Henry and the Louis, plodded over the roads that led thither, stopping at St. Denis on their way to vent their spite in demolishing the tombs of the many royal personages that had long made the abbey famous. As the favorite seat of the Condés, one of the most powerful and haughty families of the kingdom, there was every reason why the *sans culottes* should have a desire to pillage it, and there was even more reason, perhaps, why they should harbor—supposing that such a rabble had any real knowledge of past history—a grudge against the former and original owner of the place, Anne de Montmorency, Grand Constable of France, one of the most famous of French generals, who had the fortune to serve with distinction under Louis XII, Francis I, Henry II, Francis II and Charles IX. It is hardly supposable that the mob felt that they were called on to avenge the brutality with which Montmorency in 1548 put down a revolt that an obnoxious tax on salt had given rise to in Guienne; nor can any one believe that this rabble, whose fellows would shortly publicly abolish religion, included a large contingent of descendants of the Huguenots burning to repay in some

[1] Continued from page 184, No. 669.

[2] "*Monuments erigés à la gloire de Louis XV*," *par Patte*, 1765.

measure the harshness which he meted out to those unfortunate but valorous Protestants. Yet their exhilaration could not have been greater in either of these two cases when they espied on the esplanade the equestrian statue of Anne himself, and they probably accomplished its destruction with despatch and thoroughness, for no remnant of it remains. It was clearly the rider and not the horse that excited their fury, for the horses in the beautiful high-relief over the entrance to the famous stables of the Grand Condé were not injured.

Who was the sculptor of the statue of the Constable is not known, but as a description of it speaks of the horse as resting one of his fore feet on a helmet lying empty below him, it is probable that it was the work of an Italian, or, at least, of one who was familiar with

Statue of Louis XV, Bordeaux, France.[1]

Donatello's studies for his statue of Gattamalata. The rider was dressed in classic style, and the group was placed on a very lofty pedestal.

The Duc d'Aumale, who acquired Chantilly in 1830, and has spent immense sums on its restoration, a year or two ago placed in the same position an equestrian statue of the Constable, the work of the sculptor Paul Dubois.

PIERRE MAZELINE. Born at Rouen, 1633. Died Paris, 1708. He executed a statue of "Europe" and other works at Versailles. In the Church of St. Gervais, Paris, is his tomb of Michel le Tellier, and, in the Church of St. Roch his tomb of the Duc de Créquy. The equestrian statue of Louis XIV by Mazeline and Utrels was erected at Montpellier in 1717, and destroyed during the French Revolution.

ETIENNE LE HONGRE.—Born at Paris, 1628. Died 1690. Pupil of Sarrazin. He spent several years in Italy, and returning, was invited by Colbert to assist in the works at the palace of Versailles, where he executed a figure of "Air," the statues of "Vertumnus" and "Pomona," and a number of bas-reliefs. He designed the bronze equestrian statue of Louis XIV, erected in the Place Royale at Dijon. Among his other works were a part of the sculptures in the Mazarin College, now the Palace of the Institute.

MARTIN VANDEN BOGAERT (called Desjardins by the French).—Born at Breda Holland, 1640. Died 1694. Executed the celebrated pedestrian statue of Louis XIV, which stood in the Place des Victories, Paris, until the revolution, when it was destroyed. Also made the statues of "Evangelists and Fathers of the Church" at the College Mazarin, Paris, a statue of "Evening" for Versailles, a relief of "Hercules crowned by Victory," now in the Louvre.

LOUIS XV.—("Le Bien-aimé.") Great-grandson of Louis XIV. Born 1710. Became king in 1715. Ten years regency of the Duke of Orleans. Married Marie Leszcinska, of Poland. Wars of the Austrian Succession, and with England. Ruled by his mistress, Madame de Pompadour. Died 1774.

JACQUES ANGE GABRIEL.—The son and grandson of an architect; born at Paris about 1710. He attained the position of first royal architect, and built the Ecole Militaire at Paris, which was commenced in 1751. He erected a portion of the Louvre, also the two colonnades adjacent to the Place de la Concorde, which was also built from his designs, and was then called the Place Louis XV. Gabriel died in 1782.

EDIME BOUCHARDON.—Born at Chaumont (Haute Marne), 1698. Studied under his father, a sculptor and architect, and the younger Couston. Grand Prize, 1722. His principal works are the "Apostles" in the Church of St. Sulpice, Paris; several statues at Versailles; "The Fountain" of Grenelle; "Young girl holding a stag by a cord," and "Cupid and Psyche" at the Louvre.

JEAN BAPTISTE PIGALLE.—Born at Paris, 1714. Died 1785. He was the son of a carpenter, but having a taste for art, studied under Robert le Lorrain, and then in Rome. His masterpiece is the monument erected by Louis XV to Marshal Saxe, in the Church of St. Thomas, at Strasburg. At Paris, his principal work is the tomb of Marshal Harcourt, in one of the chapels of Nôtre Dame. In the Library of the Institute of France is a nude statue of Voltaire, by Pigalle. He also made a statue of his patron, Madame de Pompadour, and one of Venus, now in the garden of Sans Souci, at Pottsdam. Pigalle was one of the most celebrated of the French sculptors of the eighteenth century.

[1] "*Monuments erigés à la gloire de Louis XV*," *par Patte*, 1765.

JEAN BAPTISTE LE MOYNE.—Born in Paris, 1704. Son and pupil of Jean Louis LeMoyne, also a sculptor, and of Robert le Lorrain. Gained the Grand Prize by his bas-relief of the "Sacrifice of Polyxena." His works are a pedestrian statue of Louis XV for Rennes (destroyed); "The Death of Hippolytus"; "The Baptism of Christ"; some saint, at the Invalides; the tombs of Cardinal Fleury and Mignard, and many portrait busts. Died in 1778.

ANNE DE MONTMORENCY.—Born 1493. Died 1567. Served under Francis I in Italy. Made a marshal in 1522. When the army of Charles V entered Provence in 1536, he effected its destruction by mercilessly laying waste the country through which it must pass. Retired to Chantilly in disgrace in 1541. Under Henry II acquired great influence and made a duke. Defeated and taken prisoner in 1557 at St. Quentin by Philip II's General, Philibert Emmanuel of Savoy, and, consequently, assented to the unfortunate peace of Cateau-Cambresis. Under Charles IX, he with the Duke of Guise and Marshal St. André practically controlled the kingdom, and signalized himself by oppressing the Protestants. In 1567, he lost his life in a drawn battle, near St. Denis, in which he led the Catholics against the Protestants under Condé.

CHANTILLY.—Anne de Montmorency, High Constable of France, (1493–1567) was the real founder of Chantilly. He employed Jean Bullant as the architect, whose design is duly preserved in Ducerceau's famous book, "*Les plus excellents Bâtiments de France*." In due course of time this magnificent domain came into possession of the Grand Condé, who settled at Chantilly in 1660, and rebuilt the whole structure, except the little château (Le Châtelet), in the style of the time of Louis XIV with gardens laid out by Le Nôtre. The Grand Condé died in 1686 and his grandson built the immense and gorgeous stables near the château. The monumental entrance with a great bas-relief of horses placed above it, is gigantic; the drinking-trough, guarded by splendid sculptured horses, is colossal; the vast stalls will accommodate 240 horses and in the rooms overhead are suites of apartments for fifty guests. The Revolution razed Chantilly and its glories to the ground, these stables, with the châtelet and the château d'Enghien alone being spared, under the plea that they would be useful for cavalry. At the Restoration the castle of Chantilly again came into the hands of the Condés and their descendant, the present Duc d'Aumale, about 1840 conceived the idea of rebuilding it. His project was perforce deferred by the Revolution of 1848 and its attending events and it was not till 1876 that the work was begun. The architect chosen was Daumet and the work was completed in 1883 at a cost of eight millions of francs. In the château have been replaced a number of precious fragments of the old château, saved by Lenoir, and the rooms are filled with paintings of the highest rank and many other priceless objects of art. In 1886, the Duc d'Aumale generously presented the château, with all its collections, to the Institute of France, to be preserved exactly as it stands and opened to the public as the Condé Museum. The value of this gift is estimated at nearly fifty millions of francs.

[To be continued.]

THE TARIFF AND THE ARCHITECT.

MANY men, clever and otherwise, presume to criticise, and would amend to suit themselves the long list of duties on imports to this country, but only a few, comparatively, have, by long and tedious work, been able to grapple intelligently with the problems offered them, which, although not so great if considered singly, and, by men whose walk in life leads them by the road along which any article endeavors to thrive; still, when it is remembered that those who introduce "bills" have to first acquaint themselves and become familiar with many more things regarding every article or commodity that has been, is, or will possibly be imported, than most men know about their single line of business, and the effect or non-effect duty or free entry would leave on it, the labor is seen to be no slight one.

To introduce a tariff bill that will please all is literally an impossibility, as there are many men and many minds, but the end is not this: it is to give the greatest benefit to the "country," *i. e.*, to the majority of the people.

How thankful those who are getting up a bill of this sort must be to any one who will help them by giving to them honest facts can be readily imagined;—help them by giving them truths and realities from a simple desire to benefit the people; with no thought of encroaching upon the time and work of those engaged in such an enterprise for the sake of furthering their own selfish, and oft-times dishonest ends.

As it is with the makers of our tariffs, so it is with any whose affairs and business in life embrace more knowledge of the various arts and industries than they can naturally attain to.

The artist studies and practices his art, the engineer his engineering, and each finds a life-work and has all he can well attend to. An architect has to embrace some part of both these in *his* work, besides countless other minor details of construction and knowledge of material used, besides an insight into human nature; for it is not only his desire to please himself and to work to his ideal, but he wishes to please his client—the one who trusts in him not only for the work done, but for the way it is done and for what it is made of.

It is absolutely an impossibility for an architect to-day—the time of progress and advance in all mechanics and manufactures—to keep himself thoroughly posted in the detail of the manufacture and the quality of the material he builds his houses and his edifices of,

Help — honest help — to him is as much needed and as thankfully received, as it is to any one who has to deal with a multitude of different classes and kinds of work, any one of which he could almost spend his entire time on.

This is said to be an age of scepticism, but while this may be too severe a word, we certainly live in a time when we are apt to criticise things we see or hear, and we do not readily accept what we are told for fear of being deceived. No man cares to be deceived. He loses confidence in himself as well as in others — his *amour propre* is injured along with his faith.

It has recently become the custom for those having anything worthy of attention to be used in the construction of houses and other buildings, to put the matter fairly and squarely before the only one to whom they can go — the architect. In some (fortunately few) cases he has been known to object to this, not on account of any imagined interference with him, but because he deems a fraction of his time too valuable to be given for instruction in something or other by those he imagines have private ends to gain, and in whom he lacks confidence. Whether this lack of confidence is justified or not is a matter for individual consideration, but the representations of an upright and an honorable business house can readily be distinguished from the misrepresentations of unscrupulous parties who offer inferior articles with a so-called "guaranty" relative to their being "equal to" other goods well-known to all interested in good material and work.

If the architects do not stand by those who have helped them and endeavored to introduce, or have introduced, better classes of material of different kinds, used in or on our homes, they allow the results of honest work to be enjoyed (for a time) by the crowd who always follow in the wake of success, and defeat the very purpose and object had in view by those who were ready and willing — nay, anxious — to have the superiority of their material or wares tested and proved.

If architects do not encourage the *best* materials, and insist upon their being used, they will not find a place in their work, and while it is, nevertheless, a fact that the best goods will still continue to survive and be used by those who appreciate them, those who do not may in the end find it react to their own disadvantage.

Importer.

COMMUNICATIONS.

ARCHITECTS AND LIBRARIANS; AN EIRENICON.

Amherst, October, 1888.

To the Editors of the American Architect: —

Dear Sirs, — With the great increase of public libraries and the growth in public taste, the architecture of libraries becomes daily of more importance. It is much to be regretted that there should seem to be a sort of irrepressible conflict between librarians and architects, as indicated in your recent editorial, occasioned by the librarians' conference. As a librarian of perhaps a little more than ordinary experience with, and observation of library buildings of different styles, I feel inclined to attempt to explain this appearance of conflict and say a word for peace and co-operation.

In the first place, I would like to say that in my intercourse with architects I have always found them ready and eager to get the views of a librarian and quick to put them in practice as occasion served. Of course it is easy to say that architects, like other artists, are impractical and ready to sacrifice everything else to the æsthetic demands of their art. But the architect is so constantly, from the first step in this career, put to the solution of the most practical problems, and required to deal so largely with questions of convenience and economy that such a charge can hardly hold good. Certainly there is no reason why this unpracticalness, if it existed, should not interfere as much with success in the erection of a railroad station or a school-house as in that of a library. Nor would I admit that the failure of architects and librarians to agree is due to an uncommon development of "crankiness" in the members of our profession. Some of us are perhaps a trifle long-haired, with all that the word implies, but, mark you, it is not from this wing of our company that the sharpest criticism of the architect comes.

Where then shall we look for the reasons for this controversy? I will undertake to give a few and draw their moral. Not the least important is the one mentioned in your editorial, — the disagreement among librarians themselves as to what is wanted in a library building. But while there is this disagreement and while some of our most heated discussions among ourselves are on this very point, there is now practically a consensus of opinion as to a few leading principles. And any one who cares to follow through the volumes of the *Library Journal* the reports of our annual meetings, cannot fail to perceive certain lines laid down with something approaching constantly nearer to unanimity. Among these indications are the abandonment of lofty interiors with fixed alcoves and galleries, and the substitution of iron stacks or portable wooden cases placed near together in plain rectangular interiors; the demand for abundance of light, preferably from the higher part of the walls, and not from the roof; the use of small tables and light chairs, instead of the large heavy tables and the artistic chairs, conformed to the style of the building but awkward in use, which have so commonly been put in reading-rooms; the provision of ample, convenient and well-lighted work-rooms for the librarian and assistants.

But if there is not much disagreement among librarians about these matters, there is a cause for the trouble which architects have in getting proper direction when they undertake to plan a library that seems to me responsible for more of the trouble than any other. It is this: libraries are generally built under the direction of a building-committee, consisting of some members of a Board of Trustees, often dominated largely by the views of the donor of the building. It is very unusual to find a librarian of any experience either on such a building-committee, or, in any proper sense, consulted by it. A large share of all the new libraries are erected for incipient libraries, or for those which are not of sufficient importance to demand the services of an experienced librarian. These building-committees are more apt to accept plans which present a tasteful and showy appearance and also conform to the style of some existing, and perhaps famous, library, than to make sufficient study of the matter to learn that a new era has fairly dawned in library building and to go by the best light of that new era. And in this state of things who can wonder if but few architects become fully aware of the new demands in this department of their profession?

I cannot forbear in this connection to refer to the honored name of Richardson, which is used quite freely in your editorial. I presume no librarian can be found who will fail to do justice to the excellence of the work of our greatest architect. But on the other hand, whatever disagreement there may be among us, I am equally satisfied that no librarian, who could be quoted as authority in the profession, would express approval of the main features of Mr. Richardson's library buildings in so far as the interior is concerned or affected, — simply because Mr. Richardson's work in this line was very largely done under such circumstances as I have described. I have the best reason for believing that had he lived but a few years longer, he would have come to build libraries no less beautiful and appropriate in general effect than those he left, but better fitted to meet the wants of the modern public library. For while there may be more or less conflict between "art and use," in this department as elsewhere, I do not believe that any man of genius, alive to the real needs of such an institution, will fail in the attempt to meet those necessities, while still responding to the æsthetic requirements peculiar to this class of work. Fortunately examples of success with this problem are multiplying, and many librarians are ready to point to their architects as friends, not "natural enemies."

Wm. I. Fletcher, *Librarian of Amherst College.*

[Mr. Fletcher has accepted our invitation to develop with a little more detail the criticisms and suggestions which, it appears, are hidden from the architects in the pages of a journal which they are very unlikely ever to have consulted. — Eds. American Architect.]

SOME ANSWERS TO MR. ATKINSON.

New York, October, 1888.

To the Editors of the American Architect: —

Dear Sirs, — The inquiries of Mr. Atkinson in your issue of Oct. 13th, are very pertinent now when time is considered so much a matter of money, especially in our large cities.

Every serious fire means a loss in rentals of from six months to a year, and in a large six-story warehouse this is no trifling matter.

This, however, is not the worst of it; many good tenants may secure suitable accommodations elsewhere and decline to return to the restored, or possibly, new building. No doubt the cost is what deters many owners from putting up what are generally classed as strictly fireproof buildings, and yet much may be done to lessen the risk in buildings largely composed of wood.

Possibly the difficulty students experience in getting the information they desire arises from the fact that the architects, in whose offices they may be employed as draughtsmen, are not fully posted as to the progress which has been made and what can be obtained from manufacturers who are in the fireproofing business. With a view therefore, of supplying some information on this point, a brief description of what is in general use in New York may not be out of place.

Partition-blocks of hard-burned clay are generally used in places where there seems to be most danger from fire, as for example, light, vent, and dumb-waiter shafts. These blocks are made from three up to six inches in thickness and twelve by six inches, thus requiring two to a square foot of surface, and either set on T or angle irons, or else built up like ordinary bricks with mortar or cement.

Mansard roofs, gables and towers are filled-in with roof-blocks varying in size and thickness according to the spaces they are required to fill, seldom over six inches in thickness nor longer than two feet; it is best that they should not be more than twenty inches in length.

Ceilings are protected by blocks from one-and-one-half inches up to two inches in thickness and from one to two feet square, fastened to the beam by a nail and a washer or by a staple which projects under the block far enough to make it secure when it has once been put in place.

Girders and other large beams may be covered by these blocks secured in place in a somewhat similar manner. When transportation makes it too expensive to use hard-burned clay, plaster blocks may be used, and, if large amounts are required, they may be made on the spot to advantage.

The great danger in most buildings is that they are so constructed that a slight fire in the beginning frequently starts in a vital part, and before it is discovered, has gained too much headway to be checked. For example, open hatchways or enclosed wooden hoistways form chimneys when they catch fire and, igniting the several floors as the flames ascend, it is a matter of but a few minutes before the building is in a blaze from cellar to roof. If, on the contrary, the ceilings and beams are protected from the flames, the smoke frequently would make its way to the roof and give warning of danger before much actual damage had been done. In the "Dakota," a fireproof hotel and apartment-house, it is said that one of the light-shafts was used as a sort of chimney and that a large amount of rubbish was brought to the shaft, before the building was entirely finished, and burned up, to save the trouble of carting it away, without the slightest risk to the building. SALAMANDER.

ITHACA, N. Y., Oct. 16, 1888.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — I have given no little consideration, on behalf of the students in this department whom we are trying to adequately equip for the practical duties of their profession, to the question raised in your current issue by Mr. Atkinson. I must confess that I have met with no little difficulty, which was not wholly dissipated by a reply of Mr. Woodbury, to my question whether he thought the method of slow-burning construction was applicable to the problem presented in the design of dwelling-houses, that he could not yet see how it was to be effected. That much can be done in the construction of dwelling-houses to better adapt them to resist fire than those built after our present most prevalent method, I grant; and I know that most, if not all, well-informed architects are gladly availing themselves of the new light thrown upon this object by the work of Mr. Atkinson's company. But at the present stage of the problem two difficulties present themselves. If we prepare a design for a dwelling-house which would be accepted as a good risk by any or all of the Factory Mutual Insurance Companies, we could not induce our clients to live in a structure which is so radically different in external and internal effect from the sort of house they have been accustomed to; or else, if we attempt to apply those principles of slow-burning construction to current phases of design, the cost is so great as to be prohibitive. At the present stage of the progress of the problem, it is quite evident then, that Mr. Atkinson's admission "that the greater part of the difficulty lies with the owners and not with the architects" is well founded. C. FRANCIS OSBORNE.

THE PRESSURE OF FOOTINGS ON THE SUBSOIL.

CHICAGO, Oct. 16, 1888.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — In No. 667 of your valuable paper you comment on a communication to "*La Semaine des Constructeurs*" wherein attention is called to the fact that small foundation piers will sustain more weight per unit of surface than larger ones. I beg to say that this principle of computing the area of footings is well known to Chicago architects and builders and that to my knowledge nearly all our important foundations have been calculated accordingly. The result may not be directly due to friction only, but also to the fact that in consequence of friction the solid compressed by the bottom-layer of the foundation is not a prism but a truncated pyramid, the sides diverging towards the bottom.

Very truly yours, F. WAGNER.

A SAD CASE OF AN AWAKENED CONSCIENCE.

YORK, PENN., Oct. 15, 1888.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — A case has come to my notice, a reference to which in your journal, I think, would be interesting and beneficial to your readers, as illustrating some peculiarities of the profession in general, and of its clients in particular. During last July a Mr. C., a gentlemen of wealth and education, residing in X ——, Pa., called at my office with the intention of securing drawings for the front of a store and office building, and which I was led to believe was to be suited to an old building. I exhibited to him a number of fronts which are already built, that he might more readily compare the relative cost and appearance of the designs, and I also showed him some of the buildings as they stand. Although he was very undecided and indeed incapable of deciding what amount he should spend on the front, he left me with instructions to submit a sketch of a front that in my opinion would best suit his requirements. However, while the design was in progress, I learned that he had previously engaged Messrs. Y —— & Z ——, architects of X —— to design the entire building, who were then engaged upon the work, ignorant of the fact that he was seeking other designs. Feeling that it would be a most unprofessional undertaking to continue the work, I informed my proposed client that under the circumstances I must decline his commission, urging him to be guided by the professional ability of the architects whom he had first employed.

I heard nothing further of the matter until Messrs. Y —— & Z —— informed me that they had instituted legal proceedings against Mr. C., to recover their regular commission on drawings provided by them.

Further information disclosed the facts, that after my declining to execute his work, their client had proceeded to Philadelphia, and succeeded in obtaining a design for the front from a prominent architect in that city, which he adapted to his use, in conjunction with the plans and other details of Messrs. Y —— & Z ——, who had not only designed a front with the expectation of its being fully carried out, but had made five or more separate designs for the building as per Mr. C's instructions that the building should not cost more than $16,000. Mr. C., however, being of a very nervous and undecided disposition, in his desire to add here and there something unique or ornamental, made frequent and material additions, which increased the cost of the building to $19,000, according to the estimate of the lowest bidder. Without according to the architects the privilege of reducing this estimate, Mr. C, refused to pay the architects their commission, on the ground that the building had exceeded the cost stipulated.

The architects claim, however, that subsequently Mr. C. erected the building after their drawings, with the exception of substituting this Philadelphia front. Seeing that they had good cause for action, and wishing to make a test case out of it, they commenced a suit to recover their commission, and the progress of the matter seemed in their favor.

I write with a lengthy newspaper account before me for reference, and the most singular circumstance of the case follows. Mr. C. had a presentiment that the suit would be decided against him, and on the day named for trial he asked for a postponement for one day, which was granted. In the meantime the architects secured some valuable witnesses, which fact, being reported to Mr. C., seemed to cause him intense uneasiness. On the following morning, the day appointed for the postponed trial, he was found dying in his bed, having taken a fatal dose of morphia, as the coroner's jury decided, with suicidal intent. The deceased had no other business troubles, and this unfortunate matter was to him only a trifle, some $1,200.

The above are the facts of the case which you can use at your discretion. Yours truly, J. A. DEMPWOLF.

[WE give Mr. Dempwolf's letter in full, as his curious story hardly ought to be abridged. The client whom he so honorably gave up for the sake of professional courtesy seems to have been hardly in his right mind from the first. — EDS. AMERICAN ARCHITECT.]

MISAPPROPRIATING ANOTHER'S DESIGN.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Will you kindly answer the following through your valuable paper:

We designed a house at X ——, furnishing the contractor with full-size details for every part of the structure, including mantels. The contractor (one of the kind who "furnish plans and estimates cheerfully") has, in a house built and designed by him at X X —— duplicated a mantel from full-size drawings furnished him by us for house at X ——. Is he liable for thus using our drawings, and can we obtain legal redress?

We remain very truly, HAMILTON & MERSEREAU.

[WE doubt whether legal redress can be obtained for this mean trick. If the authors of the design wished to retain their property in the design itself, they should have copyrighted it; otherwise it is permitted to any one to imitate their mantel at pleasure. If it could be proved that the contractor used for his own profit the full-size drawings which had been entrusted to him for another purpose, we think that he could be made to pay damages for the unauthorized use of property not belonging to him; but he would probably swear that he had not used the drawings, but had only duplicated the mantel which he had just made. — EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS

A LEANING STEEPLE AT COVENTRY. — The following particulars concerning the steeple of St. Michael's Church have been published in the *Coventry Herald* by Mr. Andrews, one of the city councillors: —

In the year 1818 the upper 24 feet of the spire was taken down and rebuilt. The builders at that time must have known that the steeple was out of perpendicular, for they rebuilt the 24 feet exactly upright, so that previous to the present restoration there was a bend in the spire where the portion which had been rebuilt joined the old work. Yet it would appear that all knowledge of this had perished, for the discovery by the contractor at the commencement of the present restoration that the tower was not upright came upon us as a surprise. It will be recollected that when the discovery was made, I at once suggested that the steeple should be plumbed from the summit, so as to ascertain the total deviation from the perpendicular. A wire was suspended without delay, and an account of my observations was published in the local press about three years ago. Now that the work is approaching completion, and the steeple settled upon its new foundations, it seemed to me that

fresh measures of the leaning should be made before the scaffolding was removed, in order to hand down to our successors an exact knowledge of the extent to which the steeple leans from the perpendicular. We, therefore, suspended a fine copper wire from the centre of the spire at the apex of the hollow, 267 feet above the floor of the church. A sixteen-pound iron weight was hung at the bottom of the wire, and suspended in a bucket of water in order to prevent it swaying with the wind. Measures were made by myself and the clerk-of-the-works (Mr. Webster), with every precaution to avoid error, on two calm days in July. On one of these days the weathercocks indicated an E. S. E., wind (or *with* the leaning of the steeple), and on the other day a N. W. wind (or *against* the leaning of the steeple). A mean of the measures gives the following results:

	Out of perpendicular.
Centre of lead floor at octagon . . .	23 inches.
Centre of steeple at 267 feet . . .	38½ "
Base of weathercock at 290 feet . . .	41½ "

In order to test these results I had the wire suspended from the centre of the lead floor in the octagon (132 feet from ground) to measure the leaning of the tower only, and sets of measures were taken upon several calm days both in July and also in the present month, and these were finally verified by the city surveyor (Mr. Purnell). No sensible difference was found between these measures and those made when the full length of wire was used. St. Michael's steeple, therefore, is 3 feet 5½ inches out of perpendicular. It is proposed to place two marks upon the pavement inside the tower, one of which will be in the centre of the tower, and the other exactly under the weathercock. They will of course be 3 feet 5½ inches apart. It does not, however, require any measuring to see that the steeple is not upright. The leaning is visible to the naked eye. From the far end of Grey Friars' Green, where the steeples of Christ Church and St. Michael's are nearly in a line, it is easily seen that St. Michael's leans to the left, whilst from Ford Street, near the City Mill, it is seen to lean to the right. The direction in which the steeple leans is 37 degrees N. of West, or towards the Free Library. The lean of St. Michael's steeple as given by the *Herald* above is nearly identical with that of the Belfry in Bruges—a deflection from the perpendicular which is very perceptible from the northern points of the city.

The Cemeteries at Constantinople.—At Constantinople the big Mussulman cemeteries are sights that every visitor goes to see. From the comprehensive outlook of the Sarakn or Galata Tower, a panoramic view of the city embraces forests of dark cypress here and there. The black masses of woodland stretch along the Golden Horn, and encompass the city on every hand. They are the famous cypress graveyards of the Ottoman capital, and well worth visiting, as nothing like them is to be seen elsewhere. These cemeteries may best be described as dense forests of cypress trees and tombstones—tangled masses of graves and trees. The cypresses have grown to enormous proportions, and the dense, dark foliage forms a ceiling through which the sunshine penetrates only in streaks. The cathedral aisles of the trunks, and the tablets of the dead, are bathed in twilight all day; on moonlight nights the dark cypress cemeteries are weird pictures indeed. The Constantinople headstone is a rude representation of the human form, with a fez or turban chiselled on the top, so that on these moonlight nights they may well be taken for crowds of ghosts. In these Constantinople cemeteries, too, one may read a rare essay on natural economics. Whence comes the remarkable vigor and thrifty appearance of those thousands and hundreds of thousands of huge cypresses? The other hills and vacant areas around about them are barren, and trees planted thereon and left to take care of themselves would hardly survive. Whence, then, come the giant growth and the dark, almost black, glossy foliage of the cemetery forests? The Turkish custom of crowning their gravestones with a representation of the head-dress worn by the departed during life, furnishes a ready index to the age of the grave, apart from the epitaph. Side by side one sees in the Constantinople cemeteries the huge turban of the time of Mahmud II, and the modern fez, the former still a mass of gilt, the latter painted red. But the most impressive feature of the cypress cemeteries, and that which appeals particularly to the imagination of the Western visitor, is the way the headstones are crowded together. In spots they are literally placed as thick as they can stand, a mass of upright slabs through which one could hardly force a path. In other places they are toppled over, and lie like fallen sticks of timber one over another. The dead of different periods must have been buried one on top of another, and new bodies wedged in wherever enough soil was found to cover them up. Well might the proud old cypresses lift their glossy heads skyward and increase their swelling girth. — *Thomas Stevens in N. Y. Evening Post.*

Needless Noises.—One of the injurious influences of a city life is the nervous derangement often caused by the incessant noises that a lax or cowardly municipal government tolerates, through ignorance of the effect or fear of offence to certain voters. It is a mischief operating so subtly and imperceptibly that it is not commonly suspected till its worst effects have become almost immovably fixed. It is doubtful if any nervous system ever becomes so used to this incessant strain upon it as to feel no harm, though it is a rare case that the victim of some undefined disorder, nothing serious, nothing certainly traceable to any specific cause, nothing to require medical treatment, and yet withall a condition different from that of a hearty country life, recognizes it as the effect of the never-ending, constantly changing uproar of a city. The yelling of steam-whistles, the hiss of steam-pipes, the rattle and clash of wheels on stone-covered streets, the rumble of street-cars, the clangor of bells, the howling of hucksters, keep up a condition in which a healthy nervous system of natural strength and sensitiveness is impossible. And there is not one of these agencies that is not suppressed more or less completely in most of the great cities of the world. In Berlin heavy wagons are not allowed on certain streets. In Paris any cart-load of rattling material must be fastened till it can't rattle. Munich allows no bells on street-cars. In Philadelphia, church-bells have been held a nuisance in certain neighborhoods by judicial ruling. Steam-whistles are forbidden in nearly all the larger cities of this country and Europe. Milkmen and bakers are not allowed to use bells or horns in some cities. In others the abominable yelling and howling of hucksters for which there is no excuse at all, are prohibited. Our city might make a trial of one or two cases as an experiment.—*Indianapolis News.*

Eighteenth-Century Pews.—The cosy squire's pew of the eighteenth century was an elaborate structure, luxuriously furnished, and surmounted by crimson curtains. It often contained the only fireplace in the church, and was not complete without a square table. During the reign of George I a colored footman would enter with a tray of light refreshment just before the sermon. In one of these retreats, Ernest, duke of Cumberland, being ensconced, was roused from a doze by the exhortation —"Let us pray." "By all means," shouted the duke, "I have no objections." The poor were accommodated in narrow pews, very high and stiff in the back. No wonder a timid child remarked that a man in velvet breeches had sat her on a pantry shelf and shut the door.—*The Argosy.*

TRADE SURVEYS

A number of influences that have been at work for a year or more past far beneath the surface of trade are now beginning to crop out. Speculators and investors are very solicitous that these unfavorable symptoms should be hidden from the public view, and that the cause producing them should be corrected as soon as possible. A good deal of the prosperity apparent upon the surface of trade is sustained by artificial aids, such as governmental bond-purchasing, by which money is kept in sufficient supply. If the Government was not a buyer, and was unable to be a buyer of its own obligations, a financial astringency and a commercial depression would swoop down upon the country like a Dakota cyclone. This is not a comfortable piece of information. The Secretary of the Treasury has disbursed $15,000,000 since April, and since September 1st has had to add $45,000,000 to keep money easy. Such doctoring or assistance, or whatever it may be called, should not be such an essential factor in the commercial situation as it is. The financial question, without going into a discussion about it, is becoming a more and more important one, and bankers, manufacturers, railroad managers, and business men generally are beginning to feel the importance of as soon as possible reaching a solution of it which will give us a perfect monetary system. The situation of several of our leading railroad systems is not at all encouraging. Liquidations are necessary in two or three prominent instances and reorganizations will be forced upon others. It does not follow that the general business interests of the country will suffer from this reorganization; in fact, they will benefit by it. The country is entering upon a new set of conditions and surroundings, and lower prices are taking the place of higher prices. The gross earnings of the railways of the country are increasing, but the net earnings point to a decrease. Dividends are falling off. A fair estimate made by good authority shows a falling off from 1887 in the ratio of 90 to 54. This is bad for the stockholders and for extensive railroad-building operations in the one way, and good for the general public, and will bring no disadvantages to them in the long run. One of the results will be a more honest administration of railway affairs. Stock-jobbing operations have demoralized railroad management, and is driving out honest outside operators out of the market. Railroad buyers are disposed to draw a very unfavorable picture of the future of railroad management and railroad interests, but a correct view of the situation justifies the opinion that the experience through which railroad properties are passing will lead to a far more honorable, businesslike, and able management than has prevailed for the past ten years. Outside of railroad matters, the general business interests are jeopardized.

The political agitations are producing less harmful results than usual. A great deal is said about the smaller volume of business done in consequence of it, but when we come to investigate, the contrary is the case. If there is a lack of investments and a slackening in the run of orders in any branch of business, it is found that the causes are other than political. The business interests of the country, no matter of which political predilection, are not disposed to have their carefully-laid plans overturned to suit politicians, in other words, the business men of the country are disposed to divorce the business matters from politics. It may seem like an extravagant and unwarranted assertion to state that there is more of a demand for locomotive capacity, coastwise tonnage and lake tonnage at this time than there has been for five years, but the statement is true. There are but very few railroad companies in the United States but that are either increasing their rolling stock or are preparing to do so. Every ship-yard along the coast has its ship-making capacity oversold, except an exception be made in the case where sailing craft is turned out. Some few yards have work enough in sight to keep them busy for two years. Three new ship-yards are projected. Southern railroads will place orders this fall for vessels to carry products from the South to Northern Atlantic ports. The completion of the Panama Canal in 1899, if that scheme is successfully executed, will bring a very strong influence to bear upon the maritime interests and indirectly on the lumber, iron and other interests tributary to ship-building. The jobbing interests of the New England and Middle States report a strong spring trade in sight. Samples distributed during the past month have brought more orders in than usual so far ahead. Merchants are endeavoring to correct the evil of long credits and excessive discounts, but are making slow progress in that direction. The boot and shoe manufacturers are ahead of last year's volume of business. Furniture manufacturers East and West have sold more goods than last year. Clothing manufacturers continue well sold up, but buyers of cotton and wool are hesitating before precipitating negotiations for large future requirements. A good deal of hesitancy and anxiety will be eradicated early in November. Business men are anxious to make purchases. Manufacturers are anxious to book orders, banks are willing to loan money liberally. No weak spots exist upon the surface of trade so far as the great bulk of business interests are concerned, it is only when we go to look into the sub-basement of trade that we find weakening foundations. With wise management the foundations of our prosperity can be protected; but a better class of law-makers must come to the fore. The business interests of the country have been too long jeopardized by mere politicians.

S. J. Parkhill & Co., Printers, Boston.